

附件7、技术要求响应与偏差表

序号	货物名称	招标文件技术要求 技术参数	所投产品			偏差描述	结论	备注：支持资料所在页码
			制造商名称	品牌规格型号	产品实际技术参数			
1	原子扫描探针显微镜	1. 工作模式	Oxford Instruments	牛津、MFP-3D Origin+	1. 工作模式	无	无偏差	支持资料详见偏差表后附
2		1.1 接触模式 (Contact mode)			1.1 接触模式(Contact mode)	无	无偏差	7.1 主机产品彩页第 5 页，

			Research, Inc					7.3 产品技术 证明文件第 2 页
3		1.2 双频共振追踪压 电力显微镜 (DART PFM)			1.2 双频共振追踪压电力 显微镜 (DART PFM)	无	无偏 差	7.1 主机产品 彩页第 5 页， 7.3 产品技术 证明文件第 2 页
4		1.3 高次谐波成像模 式 (Dual AC)			1.3 高次谐波成像模式 (Dual AC)	无	无偏 差	7.1 主机产品 彩页第 5 页， 7.3 产品技术 证明文件第 2 页

5		1.4 双频共振追踪模式(Dual AC Resonance Tracking, DART)			1.4 双频共振追踪模式 (Dual AC Resonance Tracking, DART)	无	无偏差	7.1 主机产品 彩页第 5 页, 7.3 产品技术 证明文件第 3 页
6		1.5 静电力显微镜 (Electric force microscopy, EFM)			1.5 静电力显微镜 (Electric force microscopy, EFM)	无	无偏差	7.1 主机产品 彩页第 5 页, 7.3 产品技术 证明文件第 3 页
7		1.6 力学模式(Force curve mode)			1.6 力学模式(Force curve mode)	无	无偏差	7.1 主机产品 彩页第 5 页, 7.3 产品技术

								证明文件第 3 页
8		1.7 力阵列模式 (Force mapping mode/force volume)			1.7 力阵列模式 (Force mapping mode/force volume)	无	无偏差	7.1 主机产品彩页第 5 页， 7.3 产品技术证明文件第 4 页
9		1.8 力调制模式 (Force modulation)			1.8 力调制模式 (Force modulation)	无	无偏差	7.1 主机产品彩页第 5 页， 7.3 产品技术证明文件第 4 页
1		1.9 频率调制模式			1.9 频率调制模式	无	无偏	7.1 主机产品

0		(Frequency modulation)			(Frequency modulation)		差	彩页第 5 页， 7.3 产品技术 证明文件第 4 页
1 1		1.10 扫描开尔文显微镜 (Kelvin probe force microscopy, SKPM)			1.10 扫描开尔文显微镜 (Kelvin probe force microscopy, SKPM)	无	无偏差	7.1 主机产品 彩页第 5 页， 7.3 产品技术 证明文件第 4 页
1 2		1.11 横向力显微镜 (Lateral force mode, LFM)			1.11 横向力显微镜 (Lateral force mode, LFM)	无	无偏差	7.1 主机产品 彩页第 5 页， 7.3 产品技术 证明文件第 4

								页
1 3		1.12 磁力显微镜 (Magnetic force microscopy, MFM))			1.12 磁力显微镜 (Magnetic force microscopy, MFM))	无	无偏 差	7.1 主机产品 彩页第 5 页， 7.3 产品技术 证明文件第 4 页
1 4		1.13 纳米刻蚀 / 操 纵 MicroAngelo (nanolithography / nanomanipulation)			1.13 纳米刻蚀 / 操纵 MicroAngelo (nanolithography / nanomanipulation)	无	无偏 差	7.1 主机产品 彩页第 5 页， 7.3 产品技术 证明文件第 4 页
1 5		1.14 相位成像 (Phase imaging)			1.14 相位成像 (Phase imaging)	无	无偏 差	7.1 主机产品 彩页第 5 页，

								7.3 产品技术 证明文件第 4 页
1 6		1.15 压电力显微镜 (Piezoresponse force microscopy, PFM)			1.15 压电力显微镜 (Piezoresponse force microscopy, PFM)	无	无偏 差	7.1 主机产品 彩页第 5 页， 7.3 产品技术 证明文件第 4 页
1 7		1.16 极性转换谱 (Switching spectroscopy PFM)			1.16 极性转换谱 (Switching spectroscopy PFM)	无	无偏 差	7.1 主机产品 彩页第 5 页， 7.3 产品技术 证明文件第 4 页

18		1.17 轻敲模式 (Tapping mode)			1.17 轻敲模式(Tapping mode)	无	无偏差	7.1 主机产品彩页第 5 页， 7.3 产品技术证明文件第 4 页
19		★1.18 矢量压电力显微镜 (Vector PFM)			★1.18 矢量压电力显微镜 (Vector PFM)，也即是 矢量 PFM	无	无偏差	7.1 主机产品彩页第 5 页， 7.3 产品技术证明文件第 4 页
20		2. 扫描器			2. 扫描器	无	无偏差	无
2		2.1 三轴分离的平板			2.1 MFP-3D Origin+是三	无	无偏	7.3 产品技术

1		<p>式扫描器，三个轴分别由三根独立的压电陶瓷管驱动，不接受单根压电陶瓷管控制三个运动方向的管式扫描，保证三轴运动方向正交，避免管式扫描器顶端弧形扫描</p>		<p>轴分离平板闭环扫描器，XYZ 扫描方向完全正交，非传统管式扫描器。</p> <p>扫描器分别由三根独立的压电陶瓷管驱动 XYZ 三个方向的运动，避免了不同运动方向之间的影响。又因为 X、Y 轴以及样品台处于一个平板位置上，所以又称为平板式扫描。在具体的扫描过程中：Z 方向的压电陶瓷管驱动探针在</p>		差	<p>证明文件第 4, 5 页</p>
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					Z 方向上运动, X, Y 方向的 压电陶瓷管驱动样品在 X, Y 方向运动			
2 2		2.2 扫描器出厂后不需要校正, 用户不再自行校准也可获得真实数据			2.2 MFP-3D Origin+扫描器采用的是 LVDT 闭环技术, 永久无需校准。扫描器安装调试后不需要校正, 用户不再自行校准也可获得真实数据	无	无偏差	无
2 3		★2.3 XY 扫描器范围不小于 120 μm×120 μm, 适用于大范围扫描; Z 轴扫描器范围			★2.3 MFP-3D Origin+原子力显微镜中的 XY 扫描器范围 120 μm×120 μm, 适用于大范围扫描; Z	无	无偏差	7.1 主机产品 彩页第 8 页, 7.3 产品技术 证明文件第 5

		不低于 15 μm, 适用于粗糙样品扫描, 且后续可升级到 40 um 以上			轴扫描器范围 15um, 可升级到 40 μm, 适用于粗糙样品扫描, 同时具备原子级扫描			页
2 4		2.4 扫描器须提供 XYZ 三轴方向独立的闭环控制, 保证扫图不漂移, 不扭曲。其中 XY 闭环噪声<0.6 nm,Z 闭环噪声<0.25 nm;			2.4 投 标 货 物 MFP-3D Origin+扫描器具有三轴独立的闭环控制技术, 即是 LVDT 闭环技术, 测试带宽到 1000 Hz 时, 其中 XY 轴闭环传感器噪音小于 0.6 nm, Z 轴闭环传感器噪音小于 0.25 nm	无	无偏差	7.1 主机产品彩页第 8 页, 7.3 产品技术证明文件第 5 页
2		2.5 自动多条力谱采			2.5 MFP-3D Origin+原子	力谱采集可	正偏	7.3 产品技术

5		集：可通过宏命令自定义实现在多点自动采集多条力曲线，至少实现 200 条力曲线的批量自动排列并自动获得所有力曲线相关重要参数的统计学结果			力显微镜，为方便快捷地采集力谱，利用开放的多功能程序，通过宏命令自定义实现在多点自动采集多条力曲线，实现高达 300 条力曲线的批量自动排列采集，获得所有力曲线相关重要参数的统计学结果（比如粘附力、jump 力和平均值等），可现场演示	达 300 条，优于招标要求	差	证明文件第 5 页
26		3. 系统噪声水平			3. 系统噪声水平	无	无偏差	无

27		3.1 光电检测系统噪声 <15 pm			3.1 MFP-3D Origin+直流激光探测器噪音（也即是光电检测系统噪声） <15 pm	无	无偏差	7.1 主机产品彩页第 8 页， 7.3 产品技术证明文件第 5 页
28		3.2 图像高度噪声 <50 pm			3.2 MFP-3D Origin+系统高度噪音(图像高度噪声) <50pm	无	无偏差	7.1 主机产品彩页第 8 页， 7.3 产品技术证明文件第 5 页
29		4. 样品台			4. 样品台	无	无偏差	无
3		★4. 样品台：可测样			★4. MFP-3D Origin+原子	无	无偏	7.1 主机产品

0		品台直径 $\geq 80\text{ mm}$ ； 可测样品台厚度 $\geq 10\text{ mm}$ ，且后续可升级到 27 mm 以上。			力显微镜（也即是扫描探针显微镜）样品尺寸：可测量最大样品尺寸直径80 mm，适用于大尺寸样品；可测样品台厚度10 mm，且后续可升级到27 mm 以上		差	彩页第8页， 7.3 产品技术 证明文件第5 页
3 1		★5. 双频共振压电力显微镜功能：由光电检测器同时追踪两个接触共振频率的压电响应信号，双频差 $\geq 10\text{ kHz}$ ，双频共振频			★5. MFP-3D Origin+扫描探针显微镜具有DART-PFM功能，也即是双频共振压电力显微镜功能：由光电检测器同时追踪两个探针与样品接触共	双频共振频率高于招标 要求	正偏 差	7.3 产品技术 证明文件第5 页

		率 ≥ 20 k Hz;			振频率的压电响应信号， 双频差 ≥ 10 k Hz，双频共 振频率 ≥ 30 k Hz;			
3 2		6. 光学成像辅助系统			6. 光学成像辅助系统	无	无偏 差	无
3 3		6.1 10 倍物镜成像;			6. MFP-3D Origin+扫描探 针显微镜（也即是原子力 显微镜）具有上视型光学 仪,用于上光路明场成像， 物镜 10 倍	无	无偏 差	7.1 主机产品 彩页第 8 页， 7.3 产品技术 证明文件第 7 页
3 4		6.2 视野成像范围 > 700 um。			6.2 视野成像范围 720 um。	成像范围优 于招标要求	正偏 离	7.1 主机产品 彩页第 8 页， 7.3 产品技术

							证明文件第 7 页
3 5		7. 控制器系统			7. 控制器系统	无	无偏差 无
3 6		7.1 全数字双频锁相放大器；			7.1 MFP-3D Origin+原子力显微镜配备了 100%全数字双频锁相放大器，控制器产品说明第二页截图显示 M 原子力显微镜采用的是全数字锁相放大器，可以实现对扫描驱动快速数模转换	无	7.3 产品技术证明文件第 7 页, 7.2 控制器彩页第 1 页
3		7.2 一个输出频率在			7.2 MFP-3D Origin+原子	无	7.3 产品技术

7		10 MHz 的双频率频率合成器			力显微镜具备一个输出频率在 10 MHz 的双频率频率合成器		差	证明文件第 7 页,7.2 控制器 彩页第 2 页
38		7.3 数字调 Q 范围: 2 kHz-2 MHz。			7.3 MFP-3D Origin+原子力显微镜具有数字调 Q 功能, 以提升灵敏度, 调节范围 2 kHz-2 MHz	无	无偏差	7.3 产品技术 证明文件第 7 页,7.2 控制器 彩页第 2 页
39		★7.4 具有不少于 16 路 Cross Point™ 信号交换芯片用于软件功能自定义设计			★7.4 具备软件扩展功能: Cross Point™ 信号交换芯片, 包含一个 32 × 32 路数字化信号交换芯片, 用于软件功能自定义设计	投标货物具有 32 路	正偏差	7.3 产品技术 证明文件第 7 页,7.2 控制器 彩页第 2 页

40		8. 智能操作和分析软件			8. 智能操作和分析软件	无	无偏差	无
41		8.1 具有下针声音反馈系统，利于快速下针，且避免撞针			8.1 MFP-3D Origin+原子力显微镜具有下针声音反馈系统，利于快速下针，且避免撞针；该功能利用的电压值的突变和自动声音提示探针即将到达样品表面	无	无偏差	7.3 产品技术证明文件第 8 页
42		8.2 具备智能扫图模式，无需手动调节参数，软件自动调节扫描参数；			8.2 MFP-3D Origin+原子力显微镜，拥有 Getstart 智能扫图软件功能，在扫图时无需手动调节反馈增	无	无偏差	7.3 产品技术证明文件第 8 页

					益和作用力。现场演示无需手动调节参数，软件自动调节扫描参数			
4 3		8.3 探针在空气中即可完成灵敏度和力常数的校准。			8.3 MFP-3D Origin+原子力显微镜拥有 Getreal 功能，在校准探针力常数和灵敏度时，空气中即可一步完成，无需压痕样品或者标样表面	无	无偏差	7.3 产品技术证明文件第 8 页
4 4		9、智能图像处理操作平台主要性能要求：			9、智能图像处理操作平台主要性能：	无	无偏差	无
4 5		9.1 采用软硬件控制处理一体化集成设			9.1 采用软硬件控制处理一体化集成设计，在一个	无	无偏差	无

		计，在一个通用软件平台中实现统一标准化的设备硬件控制、图像处理和数据统计应用方式；设备硬件控制包括相机设备、机械手设备等；			通用软件平台中实现统一标准化的设备硬件控制、图像处理和数据统计应用方式；设备硬件控制包括相机设备、机械手设备等；			
4 6		▲9.2 支持图形化编程和代码编程两种编程模式，图形化编程要求通俗易懂，采用拖拽式流程框图定义流程，代码编程提供			▲9.2 支持图形化编程和代码编程两种编程模式，图形化编程通俗易懂，采用拖拽式流程框图定义流程，代码编程提供基于QT、C++语言的例程，为验	无	无偏差	7.4 智能图像处理操作平台 软件截图第 1-3 页

		基于 QT、C++语言的 例程，为验证投标设 备性能投标需提供以 上功能软件操作界面 截图并加盖公章；			证投标设备性能我公司提 供以上功能软件操作界面 截图并加盖公章；			
4 7		9.3、支持自定义工具 开发，流程图的工作 模式。可调用 OpenCV、 ZXing 等开源库开发 自定义工具；			9.3、支持自定义工具开 发，流程图的工作模式。 可调用 OpenCV、ZXing 等 开源库开发自定义工具；	无	无偏 差	无
4 8		▲9.4 包含常用图像 处理、外部通讯工具， 包括 3D 标定、3D 定			▲9.4 包含常用图像处 理、外部通讯工具，包括 3D 标定、3D 定位、3D 测	无	无偏 差	7.4 智能图像 处理操作平台 软件截图第

		位、3D 测量等多种高级算子,支持通过 SDK 对接软件平台, 利用 SDK 可灵活开发和扩展相关应用, 为验证投标设备性能投标提供以上功能 3D 标定、3D 定位、3D 测量软件功能操作截图并加盖公章;			量等多种高级算子, 支持通过 SDK 对接软件平台, 利用 SDK 可灵活开发和扩展相关应用, 为验证投标设备性能, 我公司提供以上功能 3D 标定、3D 定位、3D 测量软件功能操作截图并加盖公章;			4-5 页
4 9		9.5、软件工具至少包含有图像预处理、图像滤波、图像形态学、			9.5、软件工具包含有图像预处理、图像滤波、图像形态学、图像特征、图像	无	无偏差	7.4 智能图像处理操作平台 软件截图第

		图像特征、图像测量、图像识别、深度学习、立体视觉、逻辑工具等工具，为验证投标设备性能投标提供以上工具操作截图并加盖公章；			测量、图像识别、深度学习、立体视觉、逻辑工具等工具，为验证投标设备性能，我公司提供以上工具操作截图并加盖公章；			6-10 页
50		▲9.6、功能：具备相机标定、手眼标定、字符训练、立体标定、算法自主扩展、通用 TCP/IP, 串口通讯、逻辑流程图、自定义变			▲9.6、功能：具备相机标定、手眼标定、字符训练、立体标定、算法自主扩展、通用 TCP/IP, 串口通讯、逻辑流程图、自定义变量、变量赋值等功能，为验证	无	无偏差	7.4 智能图像处理操作平台 软件截图第 11-15 页

		量、变量赋值等功能， 为验证投标设备性能 投标需提供以上功能 软件操作界面截图并 加盖公章；			投标设备性能投标，我公 司提供以上功能软件操作 界面截图并加盖公章；			
5 1		▲9.7、算法工具要求 包含但不限于：用户 变量、裁剪图像、四 则运算、生成区域、 生成轮廓、单位矩阵、 获取图像、保存 bmp、 选择区域、图像变换、 颜色提取、颜色空间、			▲9.7、算法工具包含：用 户变量、裁剪图像、四则 运算、生成区域、生成轮 廓、单位矩阵、获取图像、 保存 bmp、选择区域、图 像变换、颜色提取、颜色 空间、动态阈值、边缘提 取、图像灰度化、全局阈	无	无偏 差	7.4 智能图像 处理操作平台 软件截图第 16-23 页

		动态阈值、边缘提取、 图像灰度化、全局阈 值、连通域筛选、高 斯滤波、均值滤波、 中值滤波、椒盐噪点、 距离变换、区域差集、 区域交集、区域形态 学、区域并集一、区 域并集二、连通域提 取、区域填充、平均 灰度值、区域转轮廓、 轮廓中心、区域面积 中心、圆/矩形度、最		值、连通域筛选、高斯滤 波、均值滤波、中值滤波、 椒盐噪点、距离变换、区 域差集、区域交集、区域 形态学、区域并集一、区 域并集二、连通域提取、 区域填充、平均灰度值、 区域转轮廓、轮廓中心、 区域面积中心、圆/矩形 度、最小外接正矩形、角 平分线、线线夹角、线线 间距、点线距离、点点距 离、畸变矫正、线线交点、			
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		小外接正矩形、角平分线、线线夹角、线线间距、点线距离、点点距离、畸变矫正、线线交点、圆形卡尺、椭圆卡尺、直线卡尺、矩形卡尺、中垂线、投影坐标、多边形拟合、斑点分析、颜色识别、二维码识别、特征点分析、形状匹配、图像拼接、字符识别 MLP、字符识别			圆形卡尺、椭圆卡尺、直线卡尺、矩形卡尺、中垂线、投影坐标、多边形拟合、斑点分析、颜色识别、二维码识别、特征点分析、形状匹配、图像拼接、字符识别 MLP、字符识别 SVM、双目测距、正方体计算、拟合平面、XYZ 坐标获取、点云处理、坐标转换、机械手控制、机械手放取、i++工具、分支工具、条件表达式、Reset 工具、			
--	--	--	--	--	--	--	--	--

		SVM、双目测距、正 方体计算、拟合平面、 XYZ 坐标获取、点云 处理、坐标转换、机 械手控制、机械手放 取、i++工具、分支工 具、条件表达式、 Reset 工具、深度学 习分类、深度学习目 标检测、深度学习字 符检测、深度学习字 符识别等工具，为验 证投标设备性能，投			深度学习分类、深度学 习目标检测、深度学习字符 检测、深度学习字符识别 等工具，为验证投标设备 性能，我公司提供圆/矩形 度、最小外接正矩形、直 线卡尺、投影坐标、颜色 识别、图像拼接、字符识 别 MLP、字符识别 SVM、双 目测距、机械手控制、深 度学习分类、深度学习目 标检测、深度学习字符检 测、深度学习字符识别工			
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		标提供圆/矩形度、最小外接正矩形、直线卡尺、投影坐标、颜色识别、图像拼接、字符识别 MLP、字符识别 SVM、双目测距、机械手控制、深度学习分类、深度学习目标检测、深度学习字符检测、深度学习字符识别工具功能软件操作界面截图加盖公章；			具功能软件操作界面截图 加盖公章；			
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5 2		10、函数库要求：			10、函数库：	无	无偏差	无
5 3		软件函数库平台内置丰富的计算机图像视觉算法包，拥有应用广泛的机器视觉集成开发环境，由一千多个各自独立的函数，以及底层的数据管理核心构成。包含各类滤波，色彩以及几何，数学转换，形态学计算分析，校正，分类			软件函数库平台内置丰富的计算机图像视觉算法包，拥有应用广泛的机器视觉集成开发环境，由一千多个各自独立的函数，以及底层的数据管理核心构成。包含各类滤波，色彩以及几何，数学转换，形态学计算分析，校正，分类辨识，形状搜寻等等基本的几何以及影像计算	无	无偏差	无

		辨识，形状搜寻等等基本的几何以及影像计算功能，支持 Windows，Linux 和 Mac OS X 操作环境，支持 C，C++，Python，.NET(C#，VB.NET)，Visual basic 和 Delphi 等多种普通编程语言，引入了 HALCON / Python 接口。			功能，支持 Windows，Linux 和 Mac OS X 操作环境，支持 C，C++，Python，.NET(C#，VB.NET)，Visual basic 和 Delphi 等多种普通编程语言，引入了 HALCON / Python 接口。			
5		主要规格参数：			主要规格参数：	无	无偏	无

4							差	
5	5	10.1、基本功能：算法，bit, 边缘，噪声，平滑，纹理和进一步滤波，FFT，分割，区域处理，形态学，blob 分析，color 图像处理，串口和 socket 通讯，图像采集，图像读、写，数据结构处理，可视化和窗口处理。AOP，超过 32KX32K 的图像处理。			10.1、基本功能：算法，bit, 边缘，噪声，平滑，纹理和进一步滤波，FFT，分割，区域处理，形态学，blob 分析，color 图像处理，串口和 socket 通讯，图像采集，图像读、写，数据结构处理，可视化和窗口处理。AOP，超过 32KX32K 的图像处理。支持多线程等并行编程开发；	无	无偏差	无

		支持多线程等并行编程开发;						
56		10.2、三维标定：线阵、面阵相机的 3D 定标，3D 重构的多相机标定，机器人手眼标定，相机灰度值线性标定，为验证投标设备性能，投标提供以上功能截图加盖公章；			10.2、三维标定：线阵、面阵相机的 3D 定标，3D 重构的多相机标定，机器人手眼标定，相机灰度值线性标定，为验证投标设备性能，我公司提供以上功能截图加盖公章；	无	无偏差	7.5 函数库截图及证明材料 第 1-3 页
57		10.3、一维测量：亚像素精度 1D 测量。二			10.3、一维测量：亚像素精度 1D 测量。二维测量：	无	无偏差	无

		维测量：亚像素精度滤波和 2D 轮廓提取；			亚像素精度滤波和 2D 轮廓提取；			
58		10.4、三维测量：利用立体视觉的亚像素精度 3D 测量. 单相机、基于形状的 3D 匹配，多相机的 3D 重构，3D 基元拟合、3D 表面比较、3D 处理、从 dxf 文件生产 3D 模型，偏折法法缺陷检测；			10.4、三维测量：利用立体视觉的亚像素精度 3D 测量. 单相机、基于形状的 3D 匹配，多相机的 3D 重构，3D 基元拟合、3D 表面比较、3D 处理、从 dxf 文件生产 3D 模型，偏折法法缺陷检测；	无	无偏差	无
5		10.5、Data Code 码			10.5、Data Code 码读取：	无	无偏	无

9		读取：高速 ECC200、QR、Micro-QR, Aztec 及 PDF417 码识别及印刷质量检测；			高速 ECC200、QR、Micro-QR, Aztec 及 PDF417 码识别及印刷质量检测；		差	
60		10.6 、OCR/OCV：基于语法和字典的自动纠错功能。条码读取：快速条码识别，包括 GS1 条码及印刷质量检测；			10.6 、OCR/OCV：基于语法和字典的自动纠错功能。条码读取：快速条码识别，包括 GS1 条码及印刷质量检测；	无	无偏差	无
61		10.7、Matching：基于形状或基于灰度的亚像素精度模式匹			10.7、Matching：基于形状或基于灰度的亚像素精度模式匹配，自动检测被	无	无偏差	无

		配，自动检测被测目标的外形变化，基于器件匹配和马赛克；			测目标的外形变化，基于器件匹配和马赛克；			
6 2		10.8、偏折法：利用偏折法对带有镜面反射的物体表面进行简单检查；			10.8、偏折法：利用偏折法对带有镜面反射的物体表面进行简单检查；	无	无偏差	无
6 3		10.9、3D 点云的表面融合：将多个 3D 点云融合到一个均匀的重采样点云表面；			10.9、3D 点云的表面融合：将多个 3D 点云融合到一个均匀的重采样点云表面；	无	无偏差	无
6 4		10.10、全面地支持多核平台和特殊指令集			10.10、全面地支持多核平台和特殊指令集如：AVX2	无	无偏差	无

		如：AVX2 和 NEON， 以及 GPU 加速；			和 NEON，以及 GPU 加速；			
6 5		10.11、可运行于基于 Arm® 架构的智能相 机或者其他嵌入式平 台。它还可以移植到 各种微处理器/DSP、 操作系统以及编译 器；			10.11、可运行于基于 Arm® 架构的智能相机或 者其他嵌入式平台。它还 可以移植到各种微处理器 /DSP、操作系统以及编译 器；	无	无偏 差	无
6 6		10.12、超大处理库， 包含不少于 2200 个 算子，可满足各种级 别的图像处理；			10.12、超大处理库，包含 2200 个算子，可满足各种 级别的图像处理；	无	无偏 差	无

6 7		10.13、Blob 分析不少于 50 多种形状及灰度特征提取方法；			10.13、Blob 分析 50 多种形状及灰度特征提取方法；	无	无偏差	无
6 8		10.14、支持 Dotcode 点码的读取拓展，为验证投标设备性能投标提供 3 种以上的验证代码和读取结果；			10.14、支持 Dotcode 点码的读取拓展，为验证投标设备性能，我公司提供 3 种以上的验证代码和读取结果；	无	无偏差	7.5 函数库截图及证明材料 第 4-5 页
6 9		10.15、支持深度学习的深度计数功能，具备处理 8 位或 16 位图像以及彩色或多通道图像，可以训练			10.15、支持深度学习的深度计数功能，具备处理 8 位或 16 位图像以及彩色或多通道图像，可以训练来自图像或 CAD 数据	无	无偏差	无

		来自图像或 CAD 数据的对象;			的对象;			
7 0		11. 技术服务			11. 技术服务	无	无偏差	无
7 1		11.1 设备安装、调试与验收 卖方应在合同生效后的 1 个月内和用户沟通实验室安装条件 (包括磁场, 震动测试等), 并向买方提出详细的安装要求和技术咨询。			11.1 设备安装、调试与验收 我公司在合同生效后的 1 个月内和用户沟通实验室安装条件(包括磁场, 震动测试等), 并向买方提出详细的安装要求和技术咨询。 设备到达用户所在地后,	无	无偏差	无

		设备到达用户所在地后，在接到用户通知后 2 周内进行安装调试，直至通过验收。			在接到用户通知后 2 周内进行安装调试，直至通过验收。			
7 2		11.2 技术培训：设备安装调试完成后，卖方应对用户技术人员进行调试、操作、仪器维护、故障排除等方面现场培训，时间为 2 个工作日。			11.2 技术培训：设备安装调试完成后，我公司应对用户技术人员进行调试、操作、仪器维护、故障排除等方面现场培训，时间为 5 个工作日。	培训时间为 5 个工作日	正偏差	无
7 3		11.3 保修期：在保修期内，任何由制造商			11.3 保修期：在保修期内，任何由制造商选材和	无	无偏差	无

		选材和制造不当引起的质量问题，厂家负责免费维修。保修期后，厂家提供终身维修，并保证零配件的供应。			制造不当引起的质量问题，厂家负责免费维修。 保修期后，厂家提供终身维修，并保证零配件的供应。			
7 4		11.4 维修响应时间：卖方应在 24 小时内对用户的 service 要求给予响应，需要现场解决问题的，应在 7 个工作日内到达仪器现场。			11.4 维修响应时间：我公司在 2 小时内到达现场进行处理，确保设备系统正常工作；无法在 24 小时内解决的，在 48 小时内提供备用产品，使采购人能够正常使用。	我公司在 2 小时内到达现场进行处理，确保设备系统正常工作；无法在 24 小时内解决的，	正偏差	无

						在 48 小时内 提供备用产 品，使采购人 能够正常使 用。		
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投标人（企业电子章）： 河南炎鸿电子科技有限公司

7.1 主机产品彩页

Asylum Research

MFP-3D Origin 和 Origin+ 原子力显微镜

性能优越、质量上乘的 Asylum Research 产品

高性能、功能模式和配件齐全、易于升级

The image shows two Asylum Research atomic force microscopes, the MFP-3D Origin and the MFP-3D Origin+, positioned against a background of a blue, textured surface with circular, fingerprint-like patterns. The Origin is a white, boxy unit with a blue side panel. The Origin+ is a more compact, white unit with a black top and a blue side panel. Both units have the Oxford Instruments logo and 'Asylum Research AFM' branding.

性能优越 / 用途广泛 / 优质的客户服务



AFFORDABLE

Asylum 原子力显微镜 – 触手可及的高性能

以同等的价格, 获得更优质的原子力显微镜

MFP-3D Origin™ 原子力显微镜是一款极具性价比的产品。Asylum Research 是原子力显微镜领域的行业先锋, 其产品具有高分辨率、实验多样性、使用简便等优势。对于那些刚开始使用原子力显微镜的科研人员, 或者正在寻找高质量、价格适中的原子力显微镜的人来说, 这款产品无疑是一个理想的选择。

MFP-3D Origin 原子力显微镜

高性价比的Asylum原子力显微镜支持大尺寸样品、丰富全面的图像扫描模式和多种配件。

MFP-3D Origin+ 原子力显微镜

Origin+ 具备与Origin 原子力显微镜相同的性能, 但Origin+ 可以支持更多种类的MFP-3D 模式和配件。

产品优势:

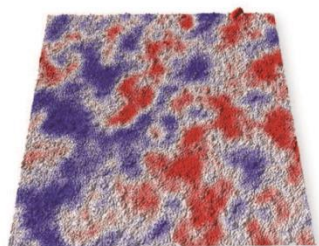
- 高性价比的原子力显微镜
- 适用于大尺寸样品 – 直径最大可达80mm
- 性能优越 – 扫描器的分辨率从原子级到120μm超大级
- 丰富的成像模式和齐全的配件
- 结实耐用, 是繁忙实验室的最佳选择
- 为全球用户提供优质的客户服务
- Asylum 品牌信誉保证



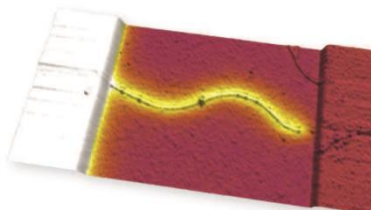
RESEARCH-GRADE

Origin 原子力显微镜是科研工作的理想选择

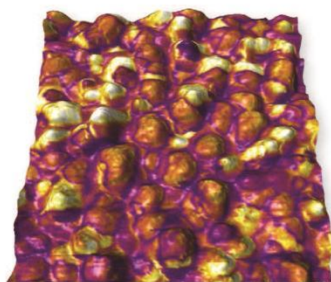
性能优越、功能广泛、适用于各个研究领域



微凝胶薄膜：表面电势图、15 μm 扫描。感谢乔治亚理工学院的C.D. Sorrell和L.A. Lyon提供样品。



附着于一个电极板上的碳纳米管：静电力显微镜 (EFM) 相图叠加于形貌上，5 x 2.5 μm 扫描。感谢俄勒冈州立大学的Minot实验室提供样品。



GaFeO₃ 薄膜：压电响应力显微镜 (PFM) 振幅叠加在形貌上，1.25 μm 扫描。感谢坎普尔加格印度理工学院的S. Mukherjee、R. Gupta和A. Garg提供样品。



DNA折纸三角：液体成像，每个边长约120 nm，600 nm扫描。感谢加州理工学院的P.W.K. Rothemund提供样品。



“在我们的实验室里，MFP-3D Origin的性能证明了它是科研级别的高质量原子力显微镜。我们的主要项目涉及柔软生物样本的分子识别，所以需要低噪音和高分辨率谱功能。我们特别欣赏这款显微镜的灵活性，它不仅具有测量功能，而且使用方便，我们可以轻松地用它制定自定义自动实验流程。”

Franziska Wild 和 Felix Hilpert,
Thorsten Röder 教授实验室
曼海姆应用科学大学

高分子聚合物

- 表面形态
- 纳米力学性质
- 共混物、共聚物、复合材料
- 接触面/界面属性
- 热转变研究

薄膜

- 粗糙度和均匀度
- 硬度和耐久性
- 导电性
- 纳米力学性质

电子设备

- 纳米级失效分析
- 掺杂浓度分析

新型材料

- 石墨烯和2D材料
- 压电体和铁电体材料
- 陶瓷和玻璃

能源材料

- 电池/ 电化材料
- 太阳能光伏材料

生物学和生物物理学领域

- 细胞的机械性能和细胞/组织的形态
- 原生细胞膜和支持的脂质双分子层
- 蛋白质、核酸、其他生物分子和分子自组体
- 食品科学
- 生物材料和生态学

NO COMPROMISE

同类仪器中性能更优越的原子力显微镜

适用于繁忙研究团队的多功能原子力显微镜

性能优越、功能多样，品质超越同价位仪器中的所有竞争者

在空气和液体中均能达到高分辨率成像

- 强大的机械设计，将噪音和漂移度最小化。
- 扫描尺寸大于多数原子力显微镜（最大可达120 μm ）。

精准的、噪音最小化的力谱测量

- 设计独特，能够消除干扰，在力谱测量中将噪音最小化，可测量皮牛级别的力
- 闭环式Z方向扫描，确保精准的“力-距离”测量和加力斜率

现代化扫描器设计，测量更精准，使用更方便

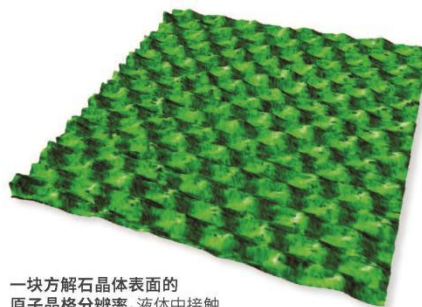
- Origin AFM 扫描器使用低噪音传感器来进行测量，并且能够实时纠正扫描路径，以提高测量的准确性，更方便地进行精确缩放和移动至感兴趣的区域
- Origin AFM 扫描器上还有柔性铰链机构，可以保持扫描轴的正交和扫描平面的平坦
- 许多同价位的原子力显微镜使用的是基于压电管的扫描器，缺少定位传感器，因此导致扫描容易出现伪像，缩放和偏移操作也不够精确

大的样品台让用户可以轻松地移动样品

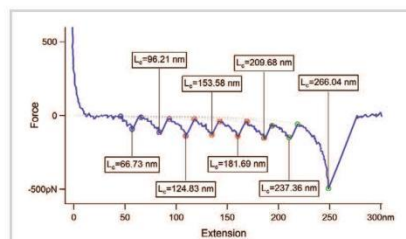
- 适用的样品最大直径为80 mm、最大厚度为10 mm (通过选配件，最大厚度可达27mm)
- “样品台测微计”有助于用户在使用上视光学镜进行观察时，对探针针尖下的样品进行精准的定位

下针扫描快速、方便、可靠

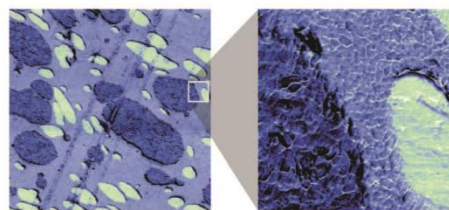
- 用户可直接控制仪器，在压电反馈回路让针尖和样品表面轻触之前，使针尖快速接近样品表面，以保护脆弱的针尖和样品



一块方解石晶体表面的原子晶格分辨率。液体中接触模式成像，7.5 nm 扫描。



肌联蛋白的机械伸展图。Asylum原子力显微镜具有高度的力敏感度，这有助于解开蛋白质结构和稳定性之谜。



闭环式扫描器可以让用户更方便地进行精确缩放和偏移至感兴趣的区域。

这是一个由三部分组成的混合物成像。左边是首先获取的一张大的整体扫描图(20 μm)，右边是之后通过单击选择的一小块区域扫描图(2 μm)。通过模量图，我们可以清晰地看出三种成分。感谢埃克森美孚研究与工程院-企业战略研究所的Dalia Yablon提供样品。

使用简单, 但功能强大的软件

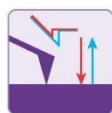
让新手能够轻松使用, 同时也适用于专家级用户

配备以下高品质软件, 让用户轻松地获得测量结果

- SmartStart™ 可以自动检测和配置系统组件, 以快速获得结果
- ModeMaster™ 可以根据用户选择的测量类型来配置软件
- GetReal™ 可以自动校准悬臂的敏感度和弹簧常数



轻敲模式



力曲线模式



AM-FM 模式



KPFM 模式

通过 **ModeMaster** 可对30多种不同模式进行一键设置

Origin 原子力显微镜支持多种操作模式

- 所有 Origin 和 Origin+ 原子力显微镜均包括所有基本模式和许多高级模式, 不另收费
- 有些用于测量纳米级机械和电子性能的高级模式使用可选的探针夹持器。这些探针夹持器可随时添加



通过刮擦聚碳酸酯形成的纳米刻蚀图
20 μm 扫描

自动化? 高级需求? 没问题!

- MacroBuilder™ 可以让用户通过简单地拖动“模块”来组成宏命令, 以进行自定义操作。无需编程技术
- 用户在 Asylum 开发的基于 IGOR Pro 的开源代码范围内, 几乎可以实现无限制的自定义



每台 Origin 和 Origin+ 原子力显微镜都包括以下模式:

- Dual AC™
- 接触模式
- Dual AC 双频共振跟踪 (DART)
- 静电力显微镜模式 (EFM)
- 力曲线模式
- 力阵列模式 (Force Volume)
- 力调制
- 频率调制
- 液体成像
- Kelvin 探针力显微镜模式 (KPFM)
- 侧向力模式 (LFM)
- 损耗因子成像
- 磁力显微镜模式 (MFM)
- MicroAngelo™ (纳米刻蚀和纳米操纵)
- 相位成像
- 压电响应力显微镜模式 (PFM)
- 畴翻转 PFM 模式
- 轻敲模式 (AC 模式)
- Q 控制轻敲模式
- 矢量 PFM 模式 ▲

可选模式如下:

- AM-FM 粘弹性成像模式
- 带有 ORCA™ 和 Eclipse™ 的导电性原子力显微镜模式 (CAFM)
- iDrive™ (液体中的磁驱动轻敲模式)
- 扫描热显微镜模式 (SThM)
- 扫描隧道显微镜模式 (STM)
- 高电压 PFM 模式 (仅适用于 Origin+)
- 扫描微波阻抗显微镜 (sMIM) (仅适用于 Origin+)
- 接触共振粘弹性成像模式 (仅适用于 Origin+)

QUANTITATIVE

不仅仅是形貌扫描, 还可以测量材料的属性

Origin 原子力显微镜系列产品拥有的众多技术中的几个例子

机械性能

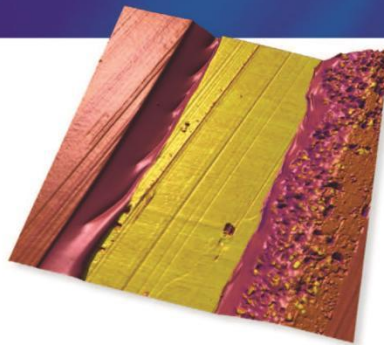
详情请查看: www.oxinst.com/NanomechPro

AM-FM 粘弹性成像模式

- 轻敲模式技术可测量弹性储能模量(E')和粘弹性损耗因子。 $\tan \delta = E'' / E'$
- 适合从50 kPa 到 300 GPa 的样品
- 速度快, 与常规轻敲模式的速度相同

接触共振粘弹性成像模式

- 接触模式技术可测量储能模量 (E')和损耗模量(E'')
- 适合从1 GPa 到300 GPa 的样品



多层咖啡袋截面图

通过AM-FM粘弹性成像模式进行成像。3D形貌图中呈现模量数据, 30 μm 扫描。

电学性能

详情请查看: www.oxinst.com/Nanoelectrical

导电性原子力显微镜模式 (CAFM)

- 测量直流电流 (从1 pA 到 >10 μA)

Kelvin探针力显微镜模式 (KPFM)

- 测量样品表面电势和功函数

静电力显微镜模式 (EFM)

- 测量静电力梯度



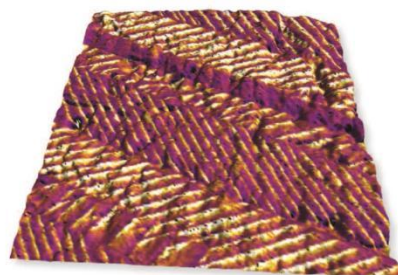
铜膜上的氮化硼和石墨烯

通过KPFM成像模式。3D形貌图上可看到表面电势数据。在铜的粗糙形貌下, 依然可清晰地显示出氮化硼的三角块儿和不规则的石墨烯形状。50 μm 扫描。感谢华盛顿大学的 N. Wilson提供样品。

功能特性

压电响应力显微镜模式 (PFM)

- 高灵敏度和不受形貌干扰测量
- 在高电压 (最高达 $\pm 220\text{ V}$) 和探针与样品接触共振频率模式 (DART) 操作时, 灵敏度更高



分子铁电薄膜

3D形貌图上可看到PFM相位数据, 20 μm 扫描。感谢华盛顿大学的A. Eshghinejad 和 J. Li提供图片。

促进您的研究更上一层楼

Asylum Research 提供最广泛的创新型附件

温度控制

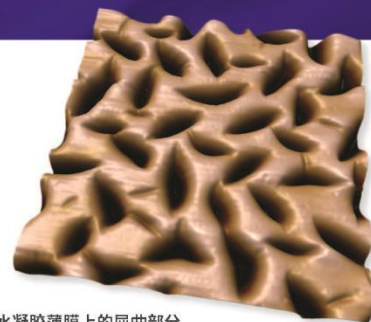
- **PolyHeater™** - 最高可加热至275/400°C (适用于Origin/Origin+)
- **CoolerHeater** - 可冷却和加热 (-30 to 120°C)
- **BioHeater™** - 基于盖玻片的液体加热器, 温度最高可达80°C
- **培养皿加热元件** - 将培养皿最高加热至45°C

外部驱动力

- **可变的磁场模块VFM3** - 最高面内磁场达 0.8 T, 面外磁场可达0.15 T
- **NanoRack™** - 可对样品外加拉力或压缩, 最大幅度达80 N
- **高压电场** - 最高达±220 V
- **探针台** - 把电信号施加在样品上

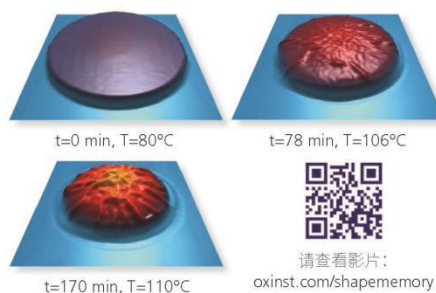
可控的气体或液体环境

- **封闭的液体池** - 可全密封条件下灌注气体或液体
- **筒式液体池** - 提供非密封液体环境 (无需灌注)
- **电封闭腔池** - 提供电学接口的可密封的环境
- **培养皿支架** - 最大限度减少器皿中的蒸发
- **MicroFlow池** - 少量液体交换
- **湿度传感池** - 带有湿度传感器的封闭腔体
- **电化学工作池** - 连接电化学工作站的带有电极的密封液体池



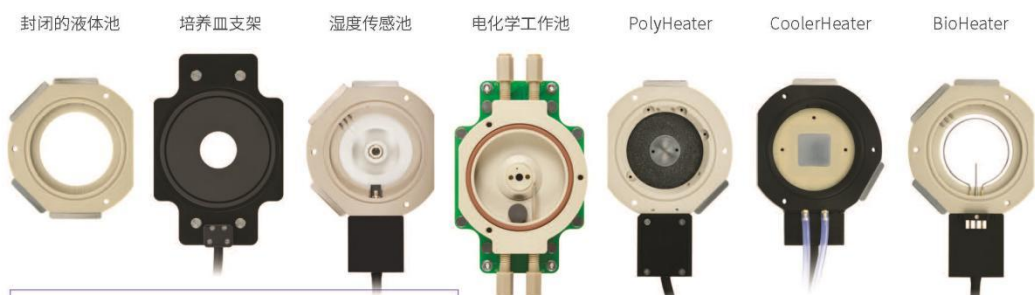
水凝胶薄膜上的屈曲部分

浸入水中, 并用BioHeater附件进行加热, 90 μm 扫描。感谢马萨诸塞大学的D. Chen提供样品。



请查看影片:
oxinst.com/shapememory

可记忆形状的聚合物微粒: 利用PolyHeater进行热处理成像, 12μm扫描。在热处理的过程中, 扁平的粒子恢复了其原来的形状。感谢NIST的J.P. Killgore 和D.C. Hurley提供样品。



- 适用于Origin和Origin+原子力显微镜
- 仅适用于Origin+原子力显微镜

详情请查看: www.oxinst.com/MFP3D-accessories

技术参数

精准的低噪音闭环扫描器

X&Y 范围: 120 μm ▲

X&Y 闭环传感器噪音 <0.6 nm

Z 范围 >15 μm (>40 μm 选项) ▲

Z 闭环传感器噪音 <0.25 nm

低噪音、高带宽光学杠杆

悬臂偏转传感器: 使用一个倒置设计(入射光不垂直), 以便大幅减少样品反光所造成的干扰。

光源: 低相干性的红外线(860 nm) 超发光二极管, FDA / IEC 激光等级1M类(无危险的)。

直流激光探测器噪音 <15 pm

高分辨率系统性能

直流高度噪音 <50 pm

交流高度噪音 <50 pm

(所有噪音数据是在扫描范围的中心, 在10秒以上的时间, 用1 KHz的带宽所测出的平均差。技术参数假定需要在一个适当的实验室环境下进行防震和隔音。)

上视型光学仪

探针, 红外线超发光二极管光斑, 样品可通过上视型明场光学仪进行观察, 通过一个10X 物镜, 有2个可选择的视野, 720 μm 和240 μm 。

样品台

样品尺寸: 最大直径80mm ▲

样品厚度: 最大10mm (可选最大27mm) ▲

隔音与防震外壳

在标准的Origin 和 Origin+ 配置中包括一个定制的隔音与防震外壳。

防震功能: 标准型号中包括一个被动型机械防震平台, 不需要压缩空气; 也可选择主动型电子防震平台。

隔音功能: 坚硬的、高阻尼隔音设备可以在典型的实验环境中提供有效的噪声隔离。

人体工学: 隔音与防震外壳可以轻松地打开, 并且可以反转, 以适应不同的实验室。外壳上有一个小窗口, 用户可以通过这个窗口进入外壳进行调整。

Origin 和 Origin+ 的不同之处:

Origin+ 型号使用的ARC2控制器与Origin型号的控制结构有所不同, 因此, Origin+ 中的一些功能不适用于Origin型号。

- 额外的模式支持 (详情见第5页)
- 额外的附件支持 (详情见第7页)
- 各种模拟输入和输出的外部接口
- 用于直接参数调整的“Hamster”控制器

两种型号的其他技术参数和功能均相同。



系统升级

- 通过升级至ARC2 AFM控制器, Origin型号可以方便地升级至Origin+ 型号。
- 两种型号均可直接升级至最新的MFP-3D Infinity型号, 以获得更高的性能和额外的成像模式。

服务与支持

保修期: 一年期全面保修

支持: 提供原子力显微镜终身免费技术支持和专业的应用支持。

欢迎联络Asylum! 为您的研究找到性能优越、价格合理的原子力显微镜

Email: China.info@oxinst.com

电话: 400 678 0609

网站: www.oxinst.com/Origin



Asylum Research
还出售满足各种实验需求的原子力显微镜探针

网店地址: <http://www.51haocai.cn/AFMProbes>

如需了解详情和询价, 请前往: www.oxford-instruments.com/Origin

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7.2 控制器彩页

ARC2™ SPM Controller – Power, Speed, and Flexibility

Asylum Research

Introduction

The Asylum Research **ARC2** SPM Controller is the most innovative controller for atomic force microscopy. The ARC2, based on the ground-breaking **all-digital MFP-3D™** Controller, incorporates improved DACs, high voltage relays, a high speed digital link, and a new design for advanced power and flexibility.

all-digital为全数字化

FPGA and Crosspoint Switch – Fast and Flexible

The ARC2 combines a fast, low noise FPGA and crosspoint switch for powerful signal routing flexibility. This enables nearly limitless controller configurations, easily set within the software.

High Performance DACs

“DAC glitches” are practically eliminated with the ARC2’s new high performance DACs. Performance is typically 10-20x better than DACs currently used in other commercial controllers.

Software Controlled Relays

The ARC2 incorporates new software-controlled, high voltage relays on the X/Y and Z piezo outputs, and for the laser power. This prevents transients upon powering up and increases the life of the piezos. High voltage relays also allow for cleaner thermal noise measurements, especially when using the Asylum Research Extended Z Head (40 μm Z scan range).

High Speed Digital Link

All ARC2s come standard with a high speed digital link – ready for the next generation of features and functions.

Ergonomic Design

The newly designed control box features a smaller footprint with easy accessibility to controls.

- The hamster control wheel can conveniently be removed from the controller so operators can use it closer to where the AFM is located.
- The hamster now has a rotating click wheel that intuitively clicks when a function is changed.
- Power supplies are housed in a pull-out tray for easy accessibility in the field.



The ARC2 SPM Controller combines high performance with ease of use.



The hamster knob on the ARC2 can be easily removed from the controller case for operating convenience. The BNC panel is concealed behind a folding cover.

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INSTRUMENTS
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Specifications

ADCs

- One 16-bit input operating at 5 MHz with seven gains and a 16-bit offset (used primarily for cantilever deflection, but also user-accessible).
- Five 16-bit inputs operating at 100 kHz (typically three are used for the reading of the X, Y, and Z sensors and two are available for user inputs).

Frequency Synthesizer 10 MHz双频合成器

Output from two Direct Digital Synthesizers (DDSs) are summed and are available on one 16-bit, 10 MHz DAC.

Frequency

DC to 2.0 MHz in 2mHz increments.

Amplitude

0 to 20 V(p-p) in 0.6 mV increments. Amplitude, phase, and frequency of the oscillator can be controlled from software at 100 kHz update rates.

DACs

Six high resolution, ultra low-noise, fast 24-bit channels updated at 100 kHz: two high voltage for XY scanning (14 kHz bandwidth); one high voltage for Z feedback (117kHz); and three general purpose low voltage (56 kHz). Noise levels are 100% factory tested:

- High voltage channels (-10 V to +150 V): Less than 70 μ V Adev in a 10 kHz bandwidth (50 μ V typ.)
- Low voltage channels (-10 V to +10 V): Less than 15 μ V Adev in a 10 kHz bandwidth (12 μ V typ.)

Dual Digital Lock-ins

Two fully digital lock-ins operating on the fast ADC data stream at 20 MHz and one at 5 MHz provide quadrature outputs. Both R/θ (amplitude/ phase) and I/Q ($R\cos\theta/R\sin\theta$) are available in output bandwidths up to 9 kHz.

DSP

Floating point processor running at 80 MHz.

Crosspoint Switch Cross point交换芯片功能描述

- ▲ 32x32 digitally controlled "switchboard" for routing signals between the controller's processors, inputs, outputs, DACs and ADCs.

Digital Q-Control

For cantilevers from 2 kHz to 2 MHz; typically enhances or suppresses Q by up to 5X.  数字调Q范围: 2 kHz-2 MHz。

USB Computer-to-Controller Communication

Laser Power

Software-controlled laser power relay.

High Voltage Relays

Software-controlled relays on X, Y, Z high voltage piezo outputs for improved user safety and piezo life.

High Speed Bidirectional Digital Link

X, Y, & Z High Voltage Outputs

-10 to +150 V

Computer (minimum)

Dell Precision T3610 Workstation, Microsoft Windows 7 Professional 64bit, Intel Four Core Ivy Bridge Xeon (3.7GHz), 8GB DDR3 RAM, Two 2TB SATA Hard, Drives (RAID1 mirror), 8x DVD+/-RW, ATI/AMD Radeon R9-270 2GB video card, Hauppauge ImpactVCB-e capture card (MFP-3D/Origin™ systems), Two 24" LCD Screens (1920x1200), Dual 27" (2560x1400 each) LCD Option available, 6 USB 2.0 ports, 4 USB 3.0 ports, 2 FireWire ports (Cypher systems).

ARC2 Bipolar Controller for Home-built SPMs

- The ARC2 Bipolar SPM Controller, configured with +220/-220 VDC power supplies, is ideally suited for home-built piezo tube based SPMs.
- The ARC2 Bipolar SPM Controller, configured with +420/-420 VDC power supplies and ultra low noise electronics, is suited for home-built piezo tube based SPMs, especially low temperature STMs.

Note: MFP-3D Infinity™ and Cypher™ AFMs feature additional "backpack" electronics located near the AFM that add to the capabilities detailed here.

Visit www.AsylumResearch.com to learn more

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7.3 产品技术证明文件

牛津仪器 MFP-3D Origin+技术说明书

1. 制造商背景介绍

Asylum Research 公司位于美国加利福尼亚圣芭芭拉市，其成立于 1999 年，是由原 DI 公司（1998 年被 Veeco 公司收购）创始团队中的 Jason Cleveland 博士、Roger Proksch 博士以及 Toddy 等人共同创立的。公司成立的目的非常简单，就是致力于为其他科学家们提供世界上最好的科研型原子力显微镜。Asylum Research 公司的宗旨和服务核心就是“Science First”。公司的名字“Asylum Research”含义就是为 AFM 研发者提供研究的庇护所，专注于为科研工作者提供最好的研究型 AFM。无论您的研究领域是材料科学、生命科学、高分子或纳米科学，Asylum Research 的原子力显微镜都可以出色的辅佐您的研究。

经过十多年的创业发展，目前 Asylum Research 公司已成为业内技术力量最为雄厚、最为专业的原子力显微镜公司。在欧美市场 Asylum Research 已成为高端原子力显微镜的代名词。目前 AR 公司的用户已经遍布全球各大知名高校及实验室，如美国橡树岭国家实验室、哈佛大学纳米系统中心（CNS）、美国华盛顿大学物理和化学系、美国加州大学伯克利劳伦斯国家实验室、美国加州大学圣芭芭拉分校国家纳米中心、斯坦福大学崔琦实验室、麻省理工 Oritiz 实验室、美国佐治亚理工学院实验室、欧洲合作同步加速器实验室、英国剑桥大学 Clarke 实验室、法国居里研究所、德国慕尼黑大学、德国马普高分子研究中心和宝洁公司表面研究实验室等。

在国内，Asylum Research 于国内都加摩擦领域专家进行合作，主要合作对象包括清华大学摩擦学国家重点实验室，清华大学机械系马天宝，谢国新教授，清华大学航空航天学院郑泉水教授（2 台）、李群仰教授和张兴教授，中国地质大学（北京）岳文教授，

为了更好地适应市场的发展，更好地服务用户，Asylum Research 公司于 2012 年加入牛津仪器，成为牛津仪器纳米技术设备有限公司的一员。牛津仪器公司 1959 年创建于英国牛津，是英国伦敦证交所的上市公司，生产分析仪器、半导体设备、超导磁体、超低温设备等高技术产品。在五十多年的高速发展过程中，牛津仪器公司凭借自身的科研优势，以超前的技术、出色的管理和独树一帜的产品和服务为全球的科技发展作出了巨大的贡献。牛津仪器现已成为世界著名的科学仪器领域的跨国集团公司，拥有分布于英国、美国、芬兰、德国和中国的十几个工厂、数十个分公司和办事处，业务遍及全球一百多个国家和地区。目前牛津仪器的科研产品主要有扫描探针显微镜、电子能谱仪、等离子刻蚀设备以及超低温设备等。牛津仪器的产品遍布全国各大高校和研究所。

牛津仪器 Asylum Research 的建立初衷就是为了提供一个能够准确的测量纳米压电学的分析测量仪，以至于第一代产品只能做上下探针运动进行力学测量，国内外众多研究材料，化工及生物物理方面的专家都是使用 MFP-3D Origin+。随着 20 多年的发展，牛津仪器 Asylum Research 已经发展为技术实力最强的压电力显微镜生产商。

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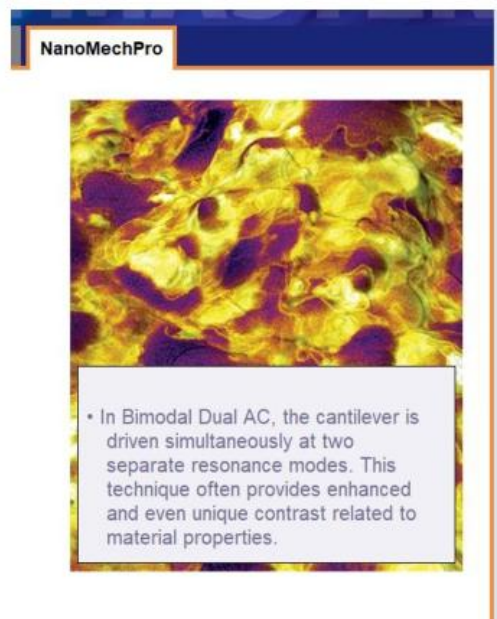
牛津仪器 MFP-3D Origin+扫描探针显微镜（也即是原子力显微镜）是市场上最全面功能和最先进的原子力显微镜，可以兼顾环境、生物、高分子、材料等各领域在微纳米尺度的表征研究（比如形貌、光、电、热、磁等多场耦合的物理特性表征），其功能强大，优势突出，应用范围也非常广泛。无论在扫描范围还是外部驱动电压上都有着较大的优势，MFP-3D Origin+ 原子力显微镜样品台尺寸达 80 mm（直径），厚度可达 10 mm 以上，适用于各类样品；采用最新一代平板扫描器，扫描时克服了传统管式扫描器带来的弯曲效应；且扫描器融入了专利的闭环 LVDT 技术，低噪声，耐热耐使用，出厂后无需校准也可获得真实的测量数据；扫描范围拓展为 $120\ \mu\text{m} \times 120\ \mu\text{m}$ ，高磁场外加磁场模块，高精度导电模块和冷却变温样品台。无论从扫描范围还是从外部控制条件来看，此次购买的原子力显微镜测试系统在很大程度上拓展了可检测材料的范围。另外，该原子力显微镜测试系统探针灵敏度校准在空气中一步完成，无需压痕样品或者标样表面；具有下针声音反馈系统，利于快速下针且避免撞针；智能扫图模式，无需手动调节参数。所以，无论从校样、下针还是扫图均实现了智能化，大大减少了对样品的损坏和对耗材的大量消耗。总之，该设备是一套拥有多功能的表面纳米电学综合测试系统。且系统可选配最全面的环境控制附件，可用于未来测试功能全面升级。此外，制造商牛津仪器公司提供优质的售后服务，建立用户反馈交流群，对于仪器在使用过程中出现的任何科研和仪器问题工程师将给予即时回答，从而保证该仪器的工作效率。

2. MFP-3D Origin+详细技术介绍

1. 包含的工作模式如下

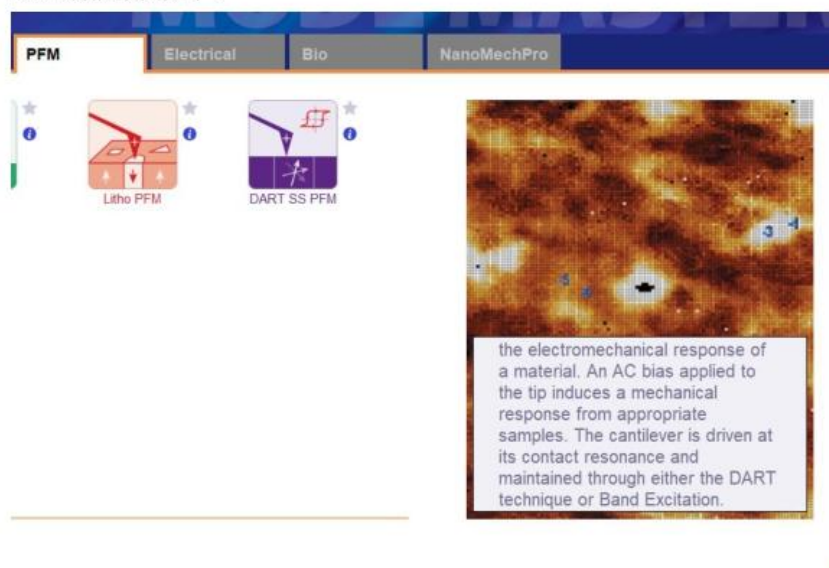
- 1.1 接触模式(Contact mode)
- 1.2 双频共振追踪压电力显微镜(DART PFM)
- 1.3 高次谐波成像模式(Dual AC)

Dual AC 功能截图如下：



1.4 双频共振追踪模式 (Dual AC Resonance Tracking, DART)

DART 功能截图如下：



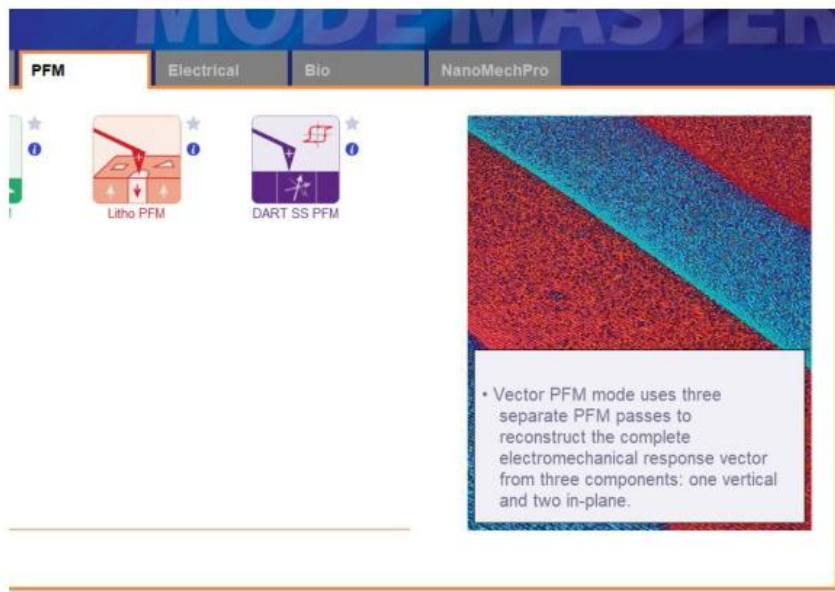
1.5 静电力显微镜 (Electric force microscopy, EFM)

1.6 力学模式 (Force curve mode)

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- 1.7 力阵列模式 (Force mapping mode/force volume)
- 1.8 力调制模式 (Force modulation)
- 1.9 频率调制模式 (Frequency modulation)
- 1.10 扫描开尔文显微镜 (Kelvin probe force microscopy, SKPM)
- 1.11 横向力显微镜 (Lateral force mode, LFM)
- 1.12 磁力显微镜 (Magnetic force microscopy, MFM)
- 1.13 纳米刻蚀 / 操纵 MicroAngelo (nanolithography / nanomanipulation)
- 1.14 相位成像 (Phase imaging)
- 1.15 压电力显微镜 (Piezoresponse force microscopy, PFM)
- 1.16 极性转换谱 (Switching spectroscopy PFM)
- 1.17 轻敲模式 (Tapping mode)
- 1.18 矢量压电力显微镜 (Vector PFM)

Vector PFM 功能截图如下:



2. 扫描器

2.1 MFP-3D Origin+是三轴分离平板闭环扫描器，XYZ 扫描方向完全正交，非传统管式扫描器。扫描器分别由三根独立的压电陶瓷管驱动 XYZ 三个方向的运动，避免了不同运动方向之间的影响。又因为 X、Y 轴以及样品台处于一个平板位置

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上，所以又称为平板式扫描。在具体的扫描过程中：Z 方向的压电陶瓷管驱动探针在 Z 方向上运动，X, Y 方向的压电陶瓷管驱动样品在 X, Y 方向运动。

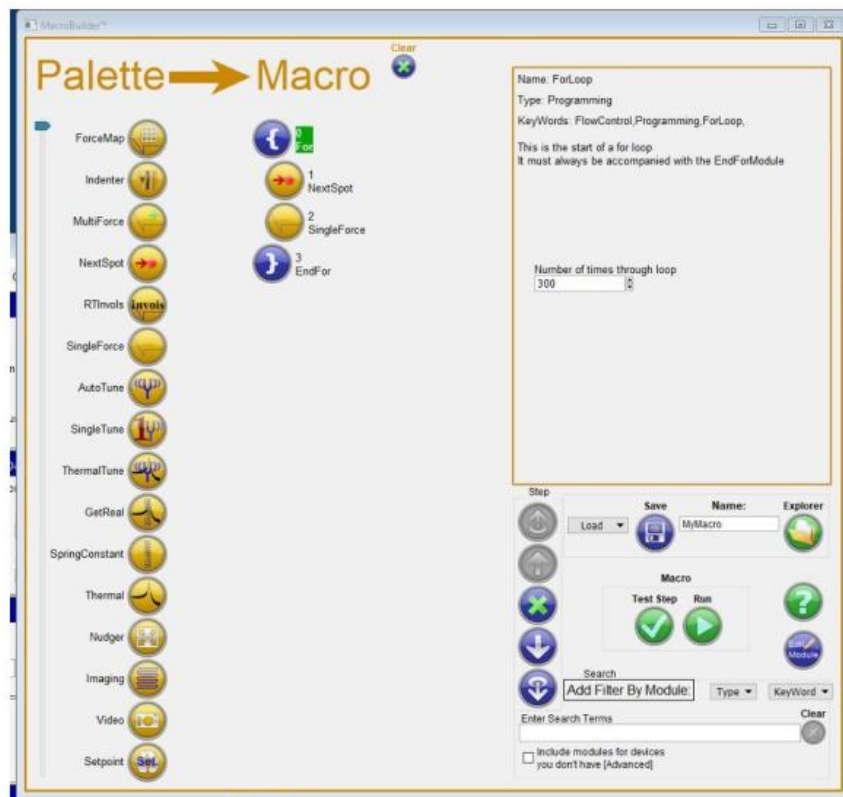
2.2 MFP-3D Origin+扫描器采用的是 LVDT 闭环技术，永久无需校准。扫描器安装调试后不需要校正，用户不再自行校准也可获得真实数据；

2.3 MFP-3D Origin+原子力显微镜中的 XY 扫描器范围 $120\ \mu\text{m} \times 120\ \mu\text{m}$ ，适用于大范围扫描；MFP-3D Origin+中的 Z 轴扫描器范围 $15\ \mu\text{m}$ ，可升级到 $40\ \mu\text{m}$ ，适用于粗糙样品扫描，同时具备原子级扫描

2.4 投标货物 MFP-3D Origin+扫描器具有三轴独立的闭环控制技术，即是 LVDT 闭环技术，测试带宽到 $1000\ \text{Hz}$ 时，其中 XY 轴闭环传感器噪音小于 $0.6\ \text{nm}$ ，Z 轴闭环传感器噪音小于 $0.25\ \text{nm}$

2.5 MFP-3D Origin+原子力显微镜，为方便快捷地采集力谱，利用开放的多功能程序，通过宏命令自定义实现在多点自动采集多条力曲线，至少实现 300 条力曲线的批量自动排列采集，获得所有力曲线相关重要参数的统计学结果（比如粘附力、jump 力和平均值等），可现场演示。

下图所示,展示了如何用宏命令 MacroBuilder 设置自定义 300 条力曲线批量采集的过程，图中的 300 就是批量力曲线的数量设置。



3. 系统噪声水平

3.1 MFP-3D Origin+直流激光探测器噪音（也即是光电检测系统噪声） <15 pm

3.2 MFP-3D Origin+系统高度噪音（图像高度噪声）<50pm

4. 样品台

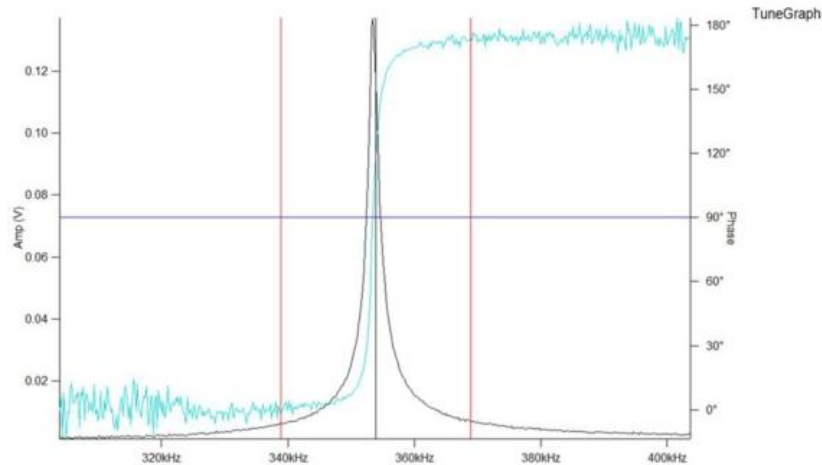
MFP-3D Origin+原子力显微镜（也即是扫描探针显微镜）样品尺寸：可测量最大样品尺寸直径 80 mm，适用于大尺寸样品；MFP-3D Origin+原子力显微镜可测样品台厚度 10 mm，且后续可升级到 27 mm 以上

5. DART-PFM 功能： MFP-3D Origin+扫描探针显微镜具有 DART-PFM 功能，也即是双频共振压电力显微镜功能：由光电检测器同时追踪两个探针与样品接触共振频率的压电响应信号，双频差 ≥ 10 k Hz，双频共振频率 ≥ 30 k Hz；

下图展示了双频共振压电力显微镜的截图，其中双频共振频率达到 350 kHz

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(中间黑色的线指示的共振频率)，双频差达到 80 kHz (两条红线的频率差)：



6. 光学成像辅助系统

6.1 MFP-3D Origin+扫描探针显微镜（也即是原子力显微镜）具有上视型光学仪，用于上光路明场成像，物镜 10 倍；

6.2 视野成像范围 720 μm 。

7. 控制器系统

7.1 MFP-3D Origin+原子力显微镜配备了 100%全数字双频锁相放大器，控制器产品说明第二页截图显示原子力显微镜采用的是全数字锁相放大器，可以实现对扫描驱动快速数模转换

7.2 MFP-3D Origin+原子力显微镜具备一个输出频率在 10 MHz 的双频率频率合成器

7.3 MFP-3D Origin+原子力显微镜具有数字调 Q 功能，以提升灵敏度，调节范围 2 kHz-2 MHz

7.4 具备软件扩展功能：Cross Point™ 信号交换芯片，包含一个 32 \times 32 路数字化信号交换芯片，用于软件功能自定义设计

8. 智能操作和分析软件

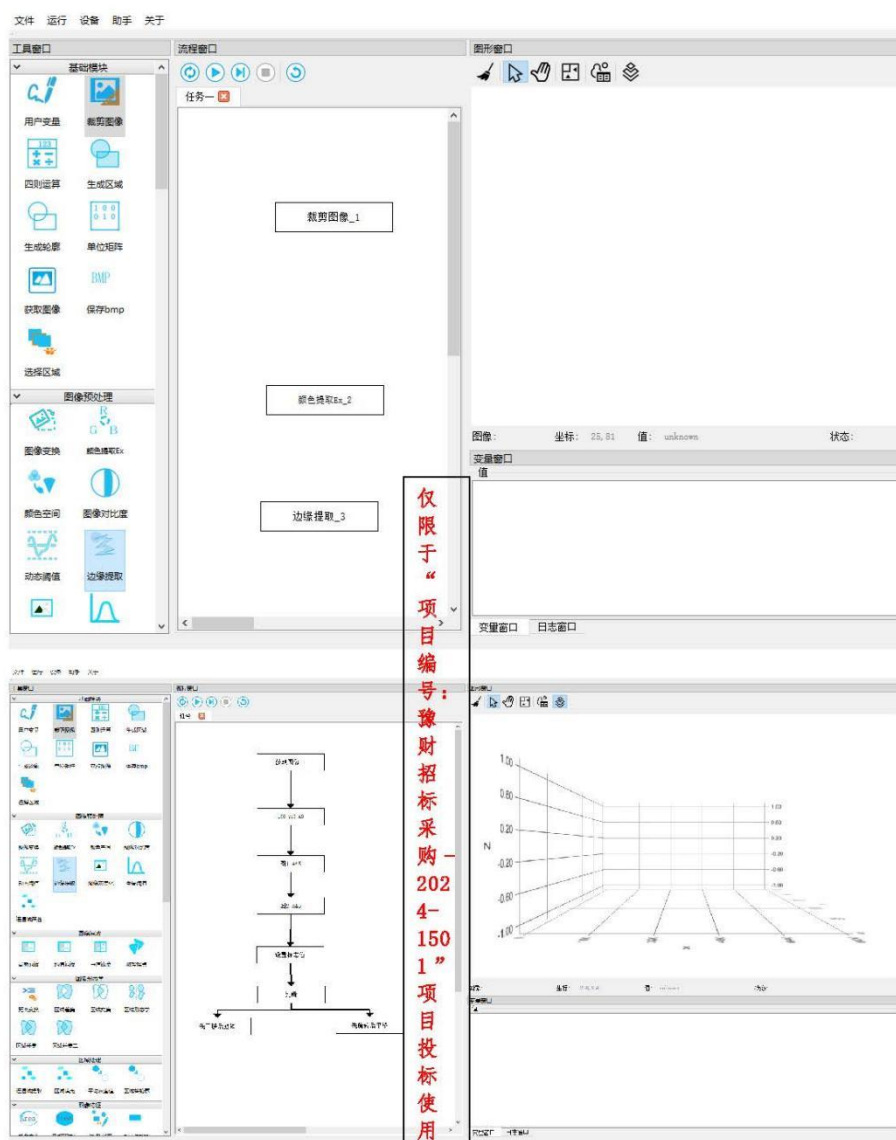
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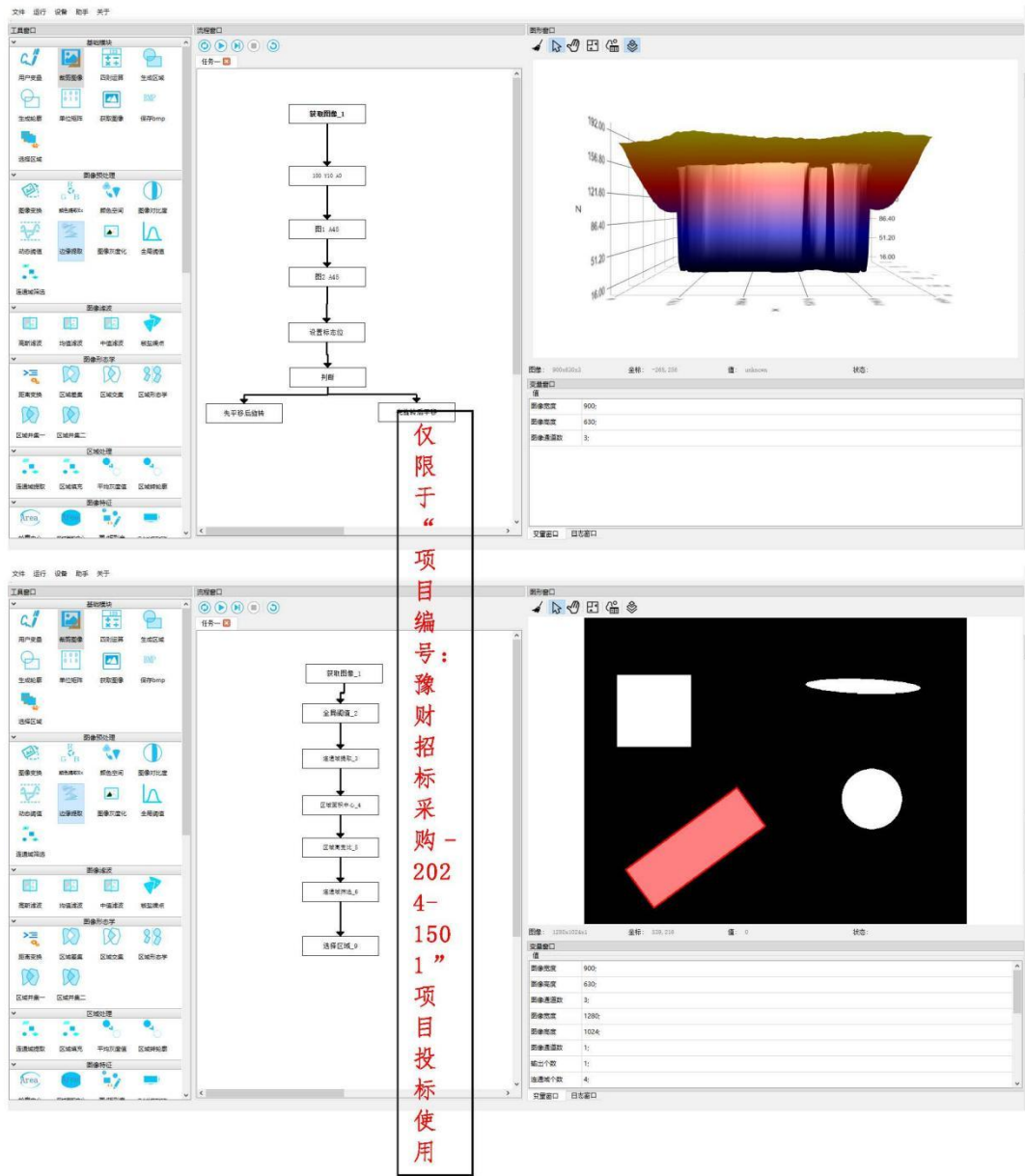
- 8.1 MFP-3D Origin+原子力显微镜具有下针声音反馈系统，利于快速下针，且避免撞针；该功能利用的电压值的突变和自动声音提示探针即将到达样品表面
- 8.2 MFP-3D Origin+原子力显微镜，拥有 Getstart 智能扫图软件功能，在扫图时无需手动调节反馈增益和作用力。现场演示无需手动调节参数，软件自动调节扫描参数
- 8.3 MFP-3D Origin+原子力显微镜拥有 Getreal 功能，在校准探针力常数和灵敏度时，空气中即可一步完成，无需压痕样品或者标样表面

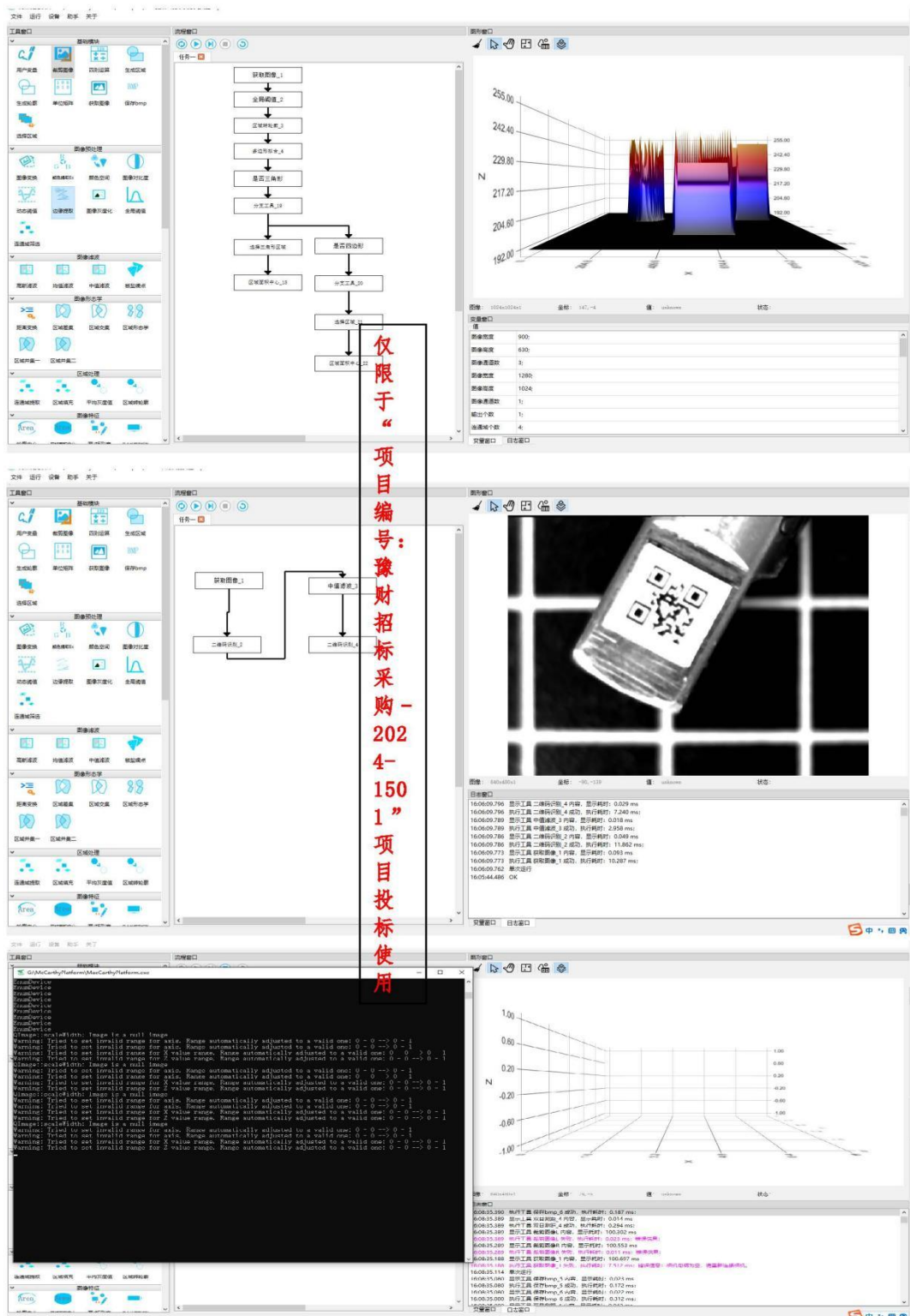
7.4 智能图像处理操作平台软件截图

▲9.2 支持图形化编程和代码编程两种编程模式，图形化编程要求通俗易懂，采用拖拽式流程框图定义流程，代码编程提供基于 QT、C++语言的例程，为验证投标设备性能投标需提供以上功能软件操作界面截图并加盖公章；

提供以上功能软件操作界面截图如下：

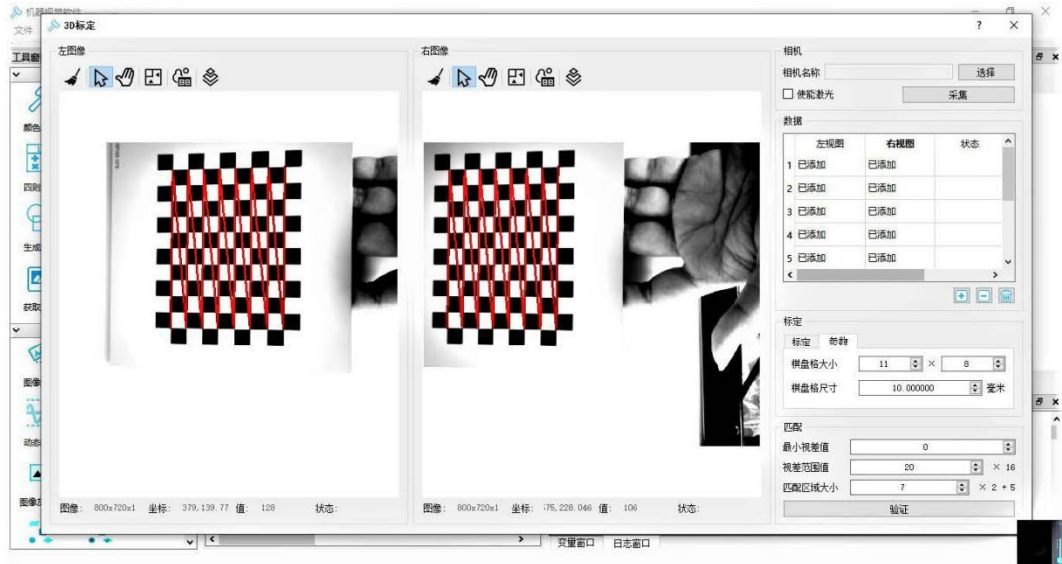




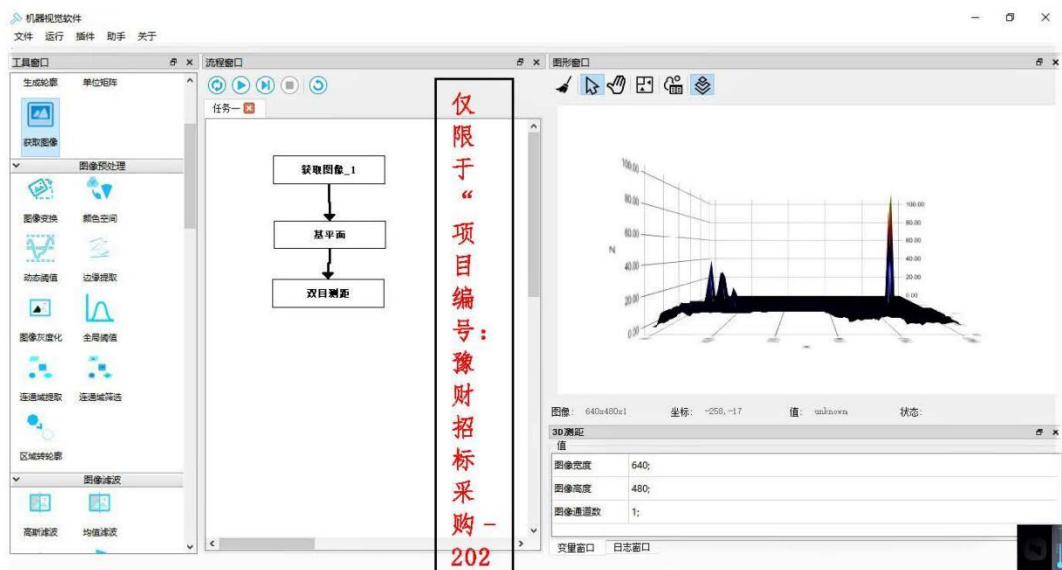


▲9.4 包含常用图像处理、外部通讯工具，包括 3D 标定、3D 定位、3D 测量等多种高级算子，支持通过 SDK 对接软件平台，利用 SDK 可灵活开发和扩展相关应用，为验证投标设备性能提供以上功能 3D 标定、3D 定位、3D 测量软件功能操作截图并加盖公章：

3D 标定软件功能操作截图：

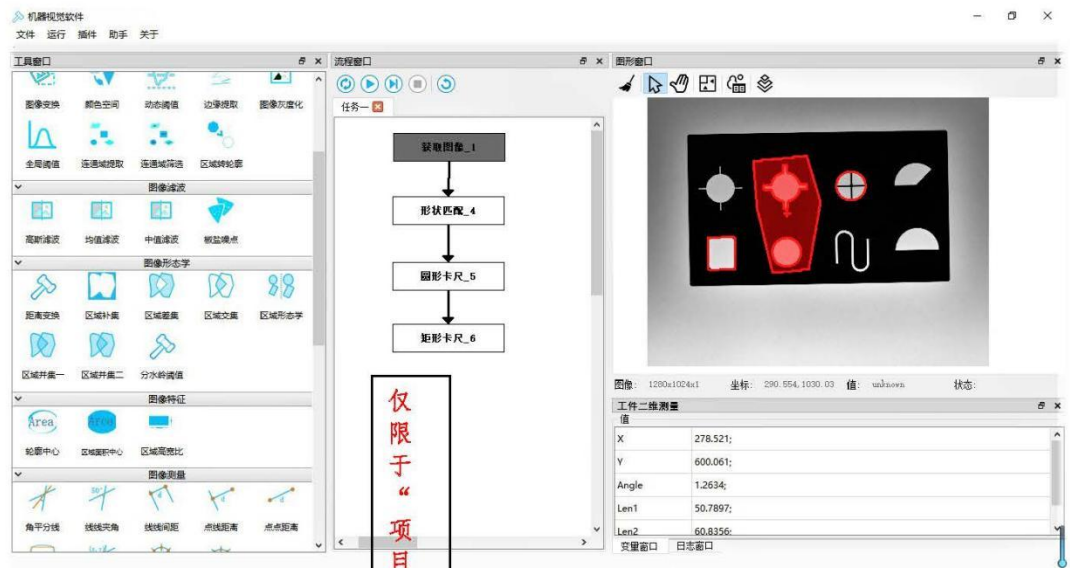


3D 定位软件功能操作截图：



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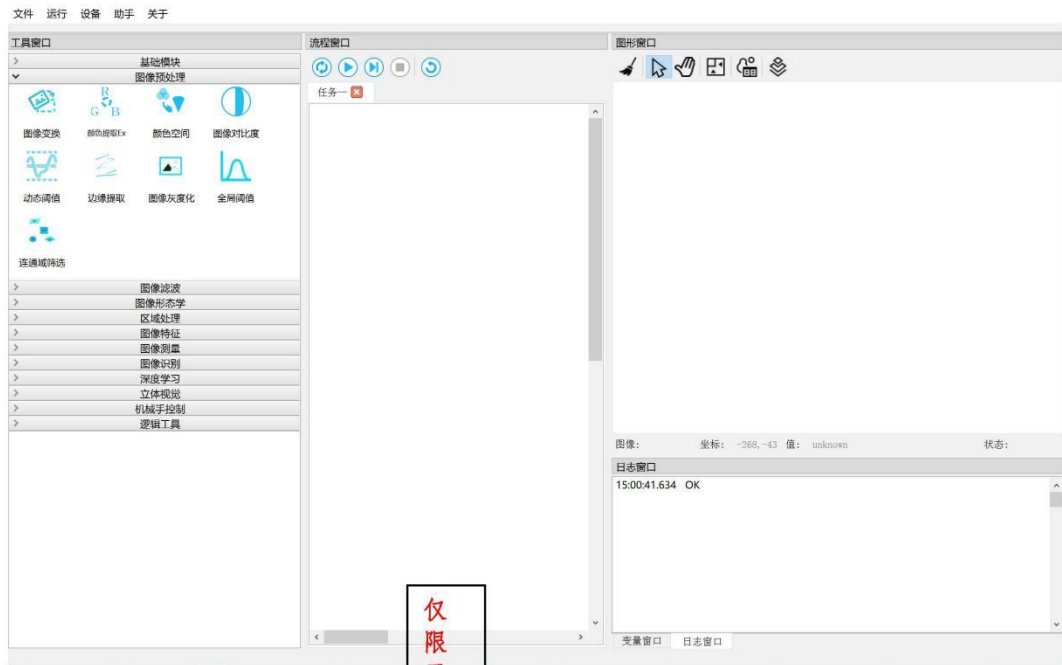
3D 测量软件功能操作截图



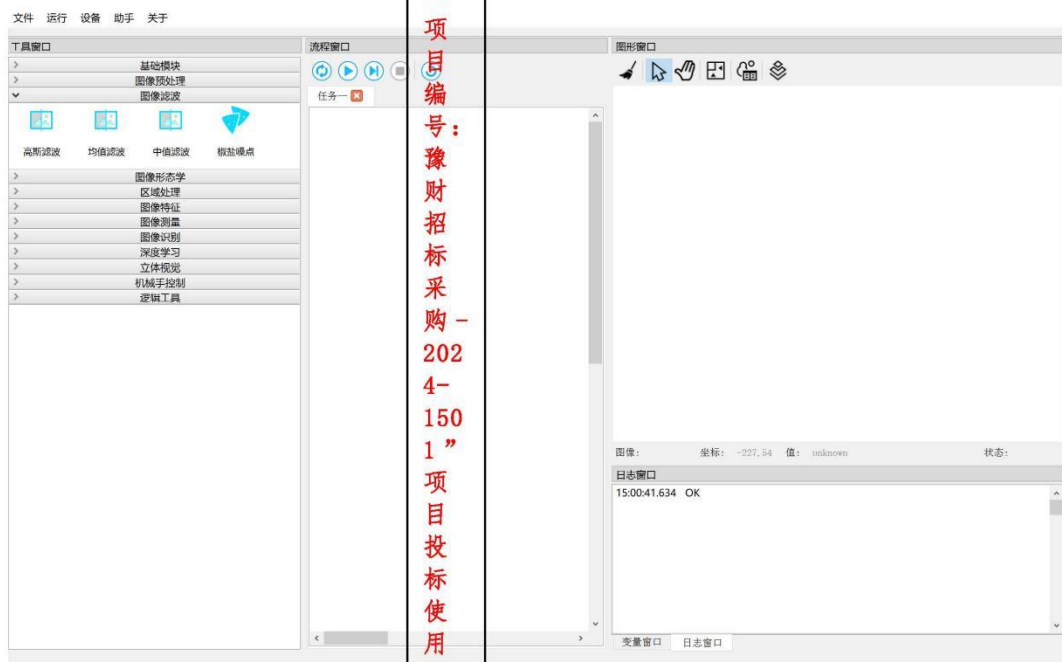
9.5、软件工具至少包含有图像预处理、图像滤波、图像形态学、图像特征、图像测量、图像识别、深度学习、立体视觉、逻辑工具等工具，为验证投标设备性能投标提供以上工具操作截图并加盖公章；

提供工具操作界面截图如下：

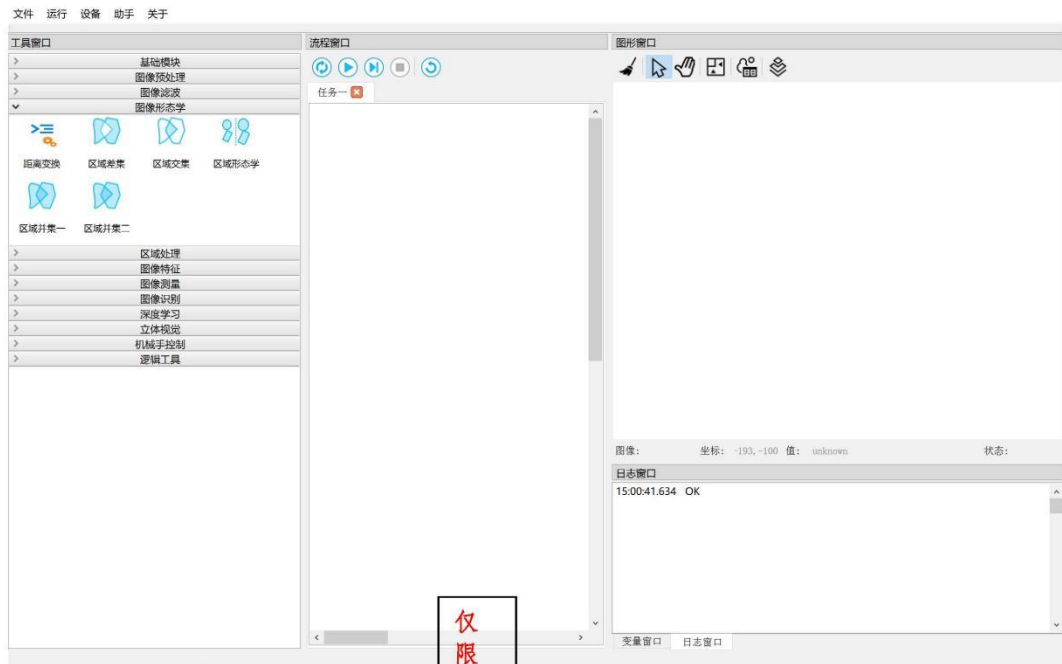
图像预处理：



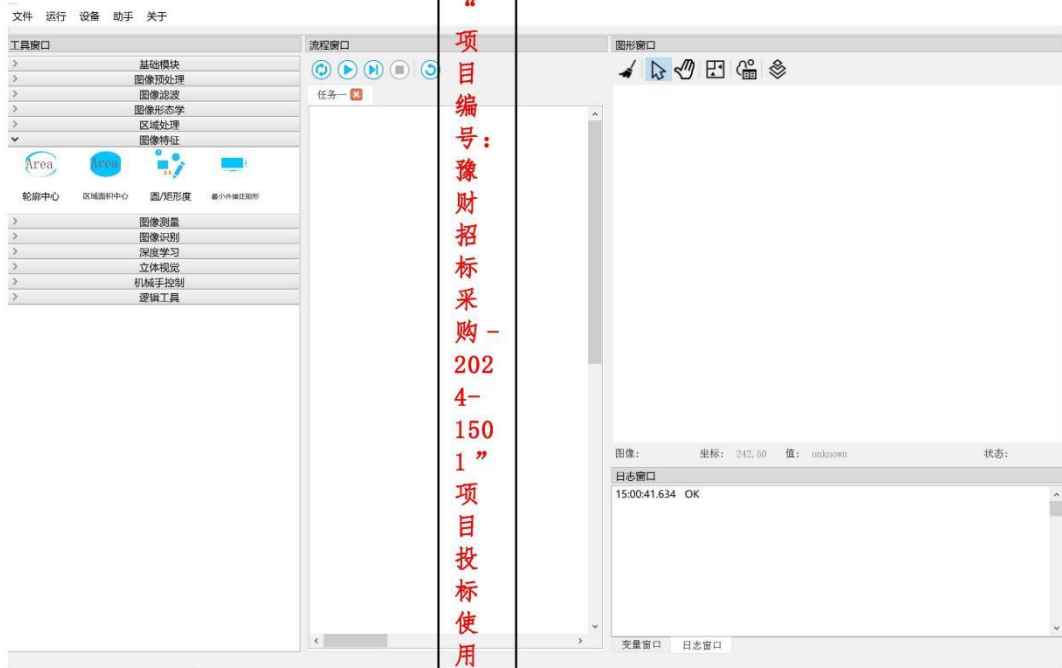
图像滤波：



图像形态学：

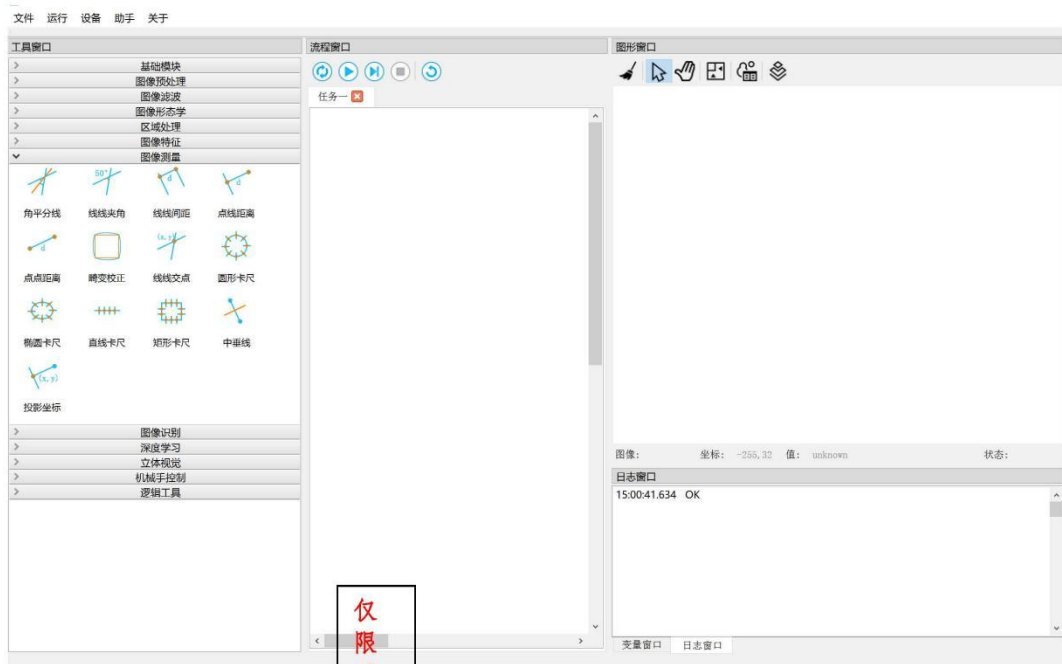


图像特征:

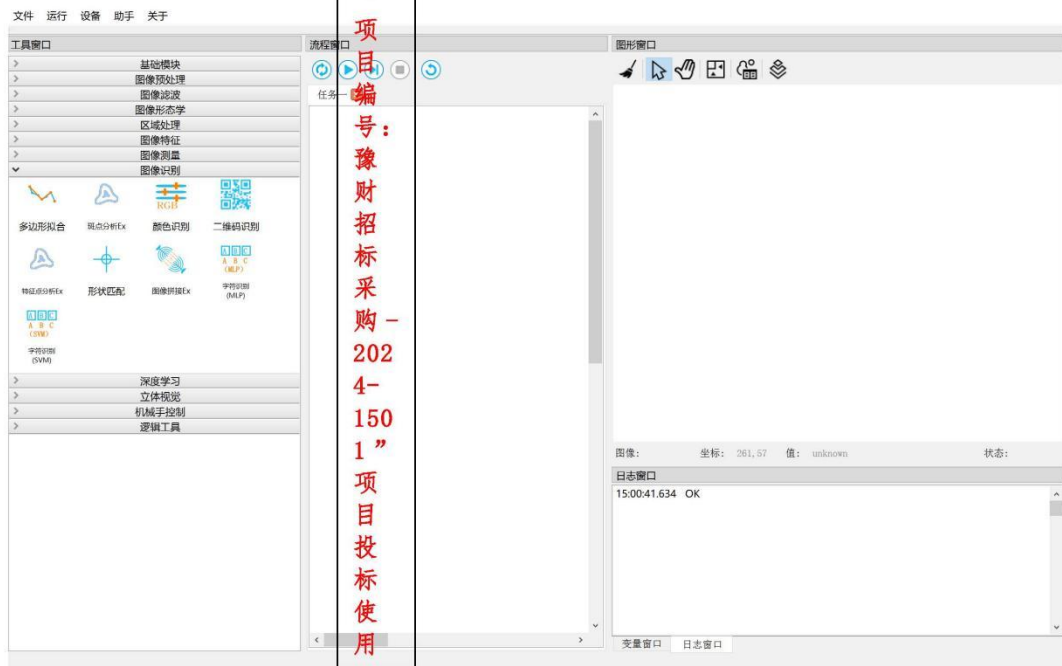


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图像测量:

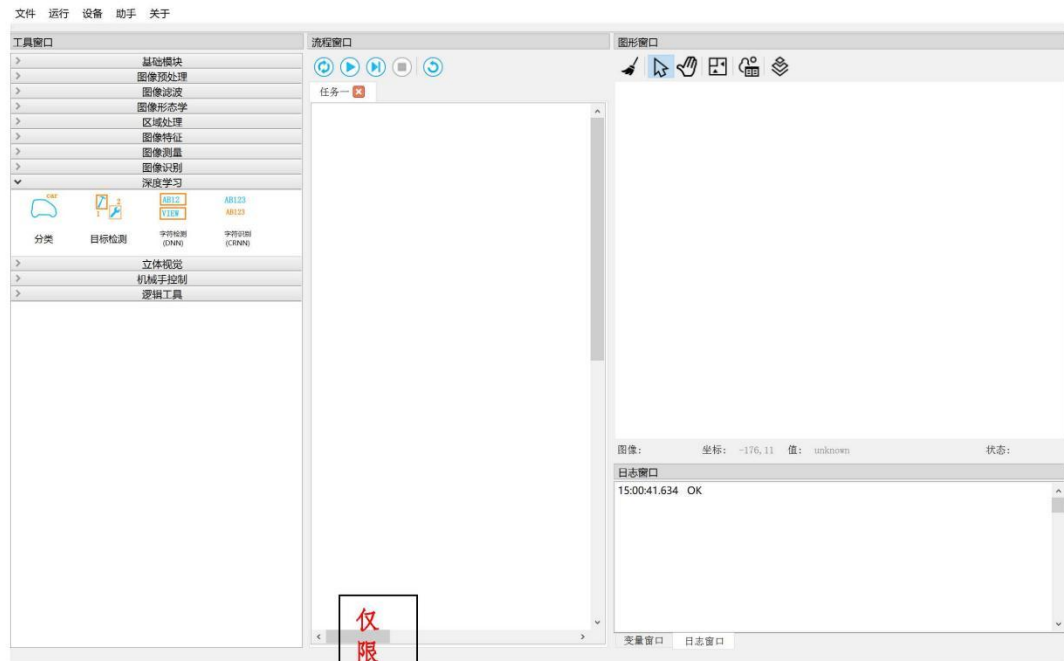


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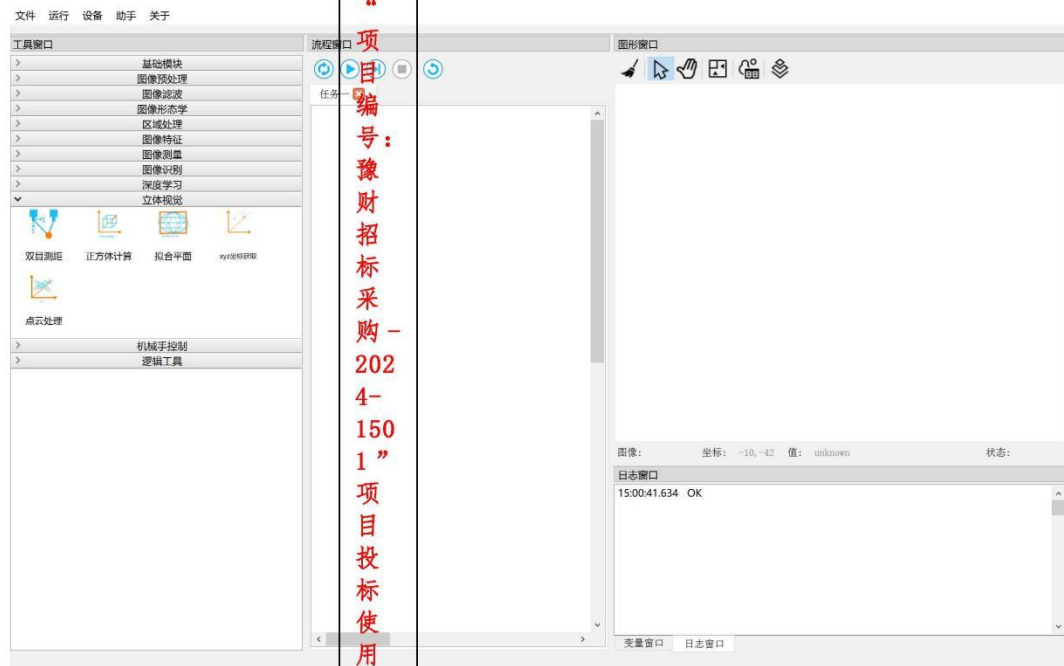


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深度学习：

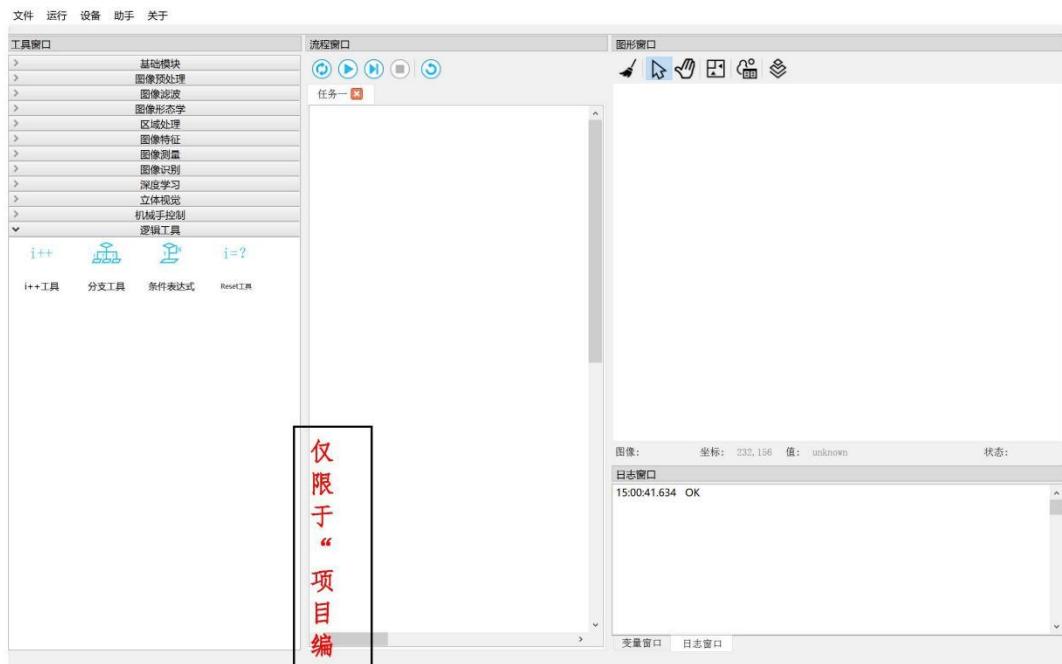


立体视觉：



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逻辑工具：



仅限于“项目编号：豫财招标采购-2024-1501”项目投标使用

▲9.6、功能：具备相机标定、手眼标定、字符训练、立体标定、算法自主扩展、通用 TCP/IP、串口通讯、逻辑流程图、自定义变量、变量赋值等功能，为验证投标设备性能投标需提供以上功能软件操作界面截图并加盖公章；

相机标定：



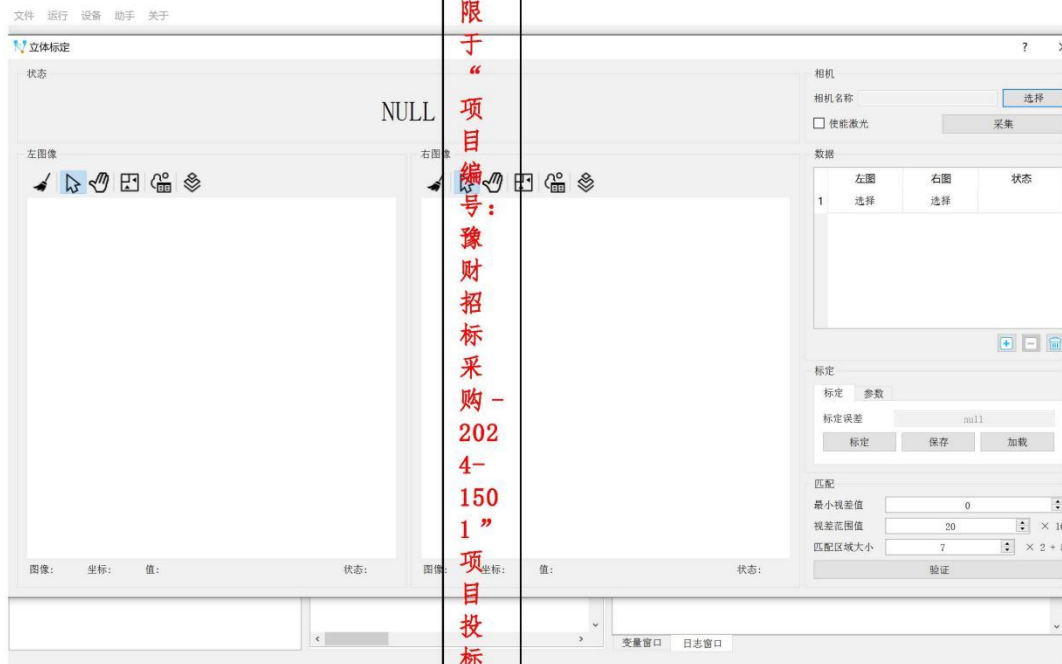
手眼标定：



字符训练:

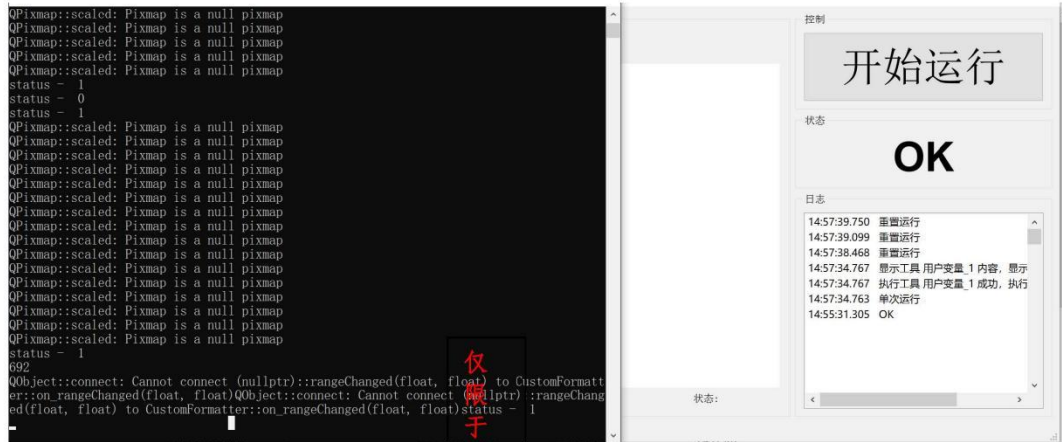


立体标定:

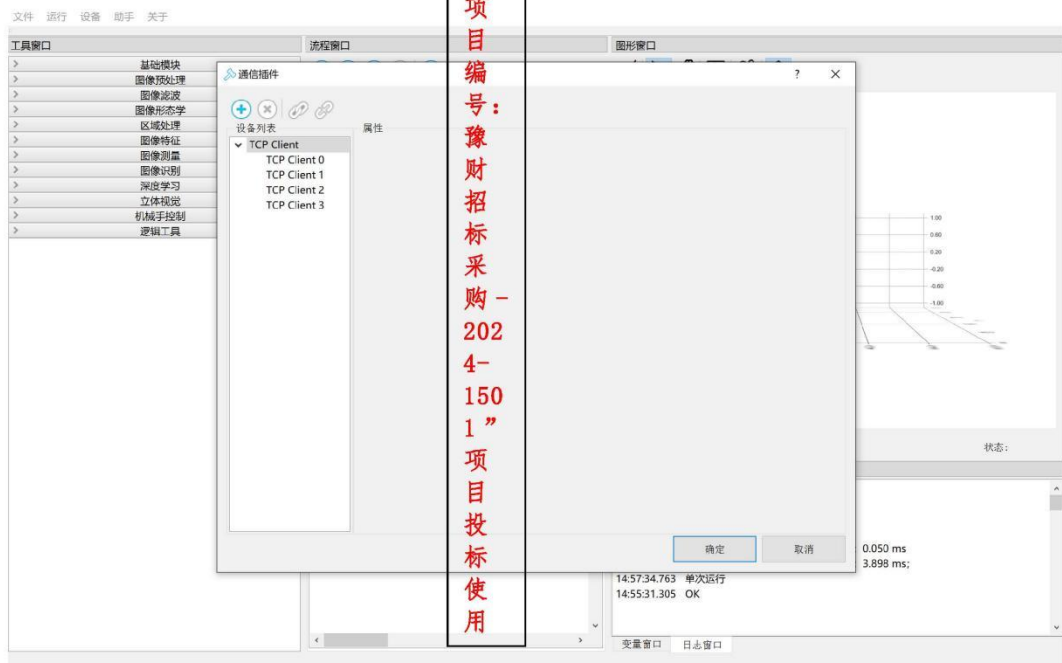


仅限于“项目编号: 豫财招标采购-2024-1501”项目投标使用

算法自主扩展：

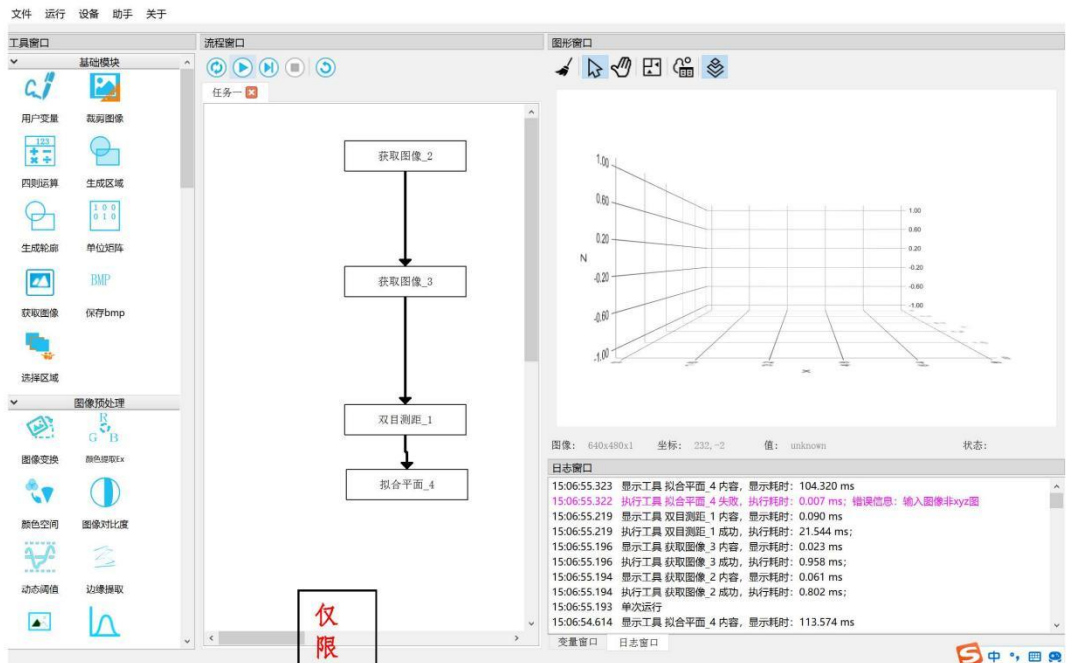


通用 TCP/IP

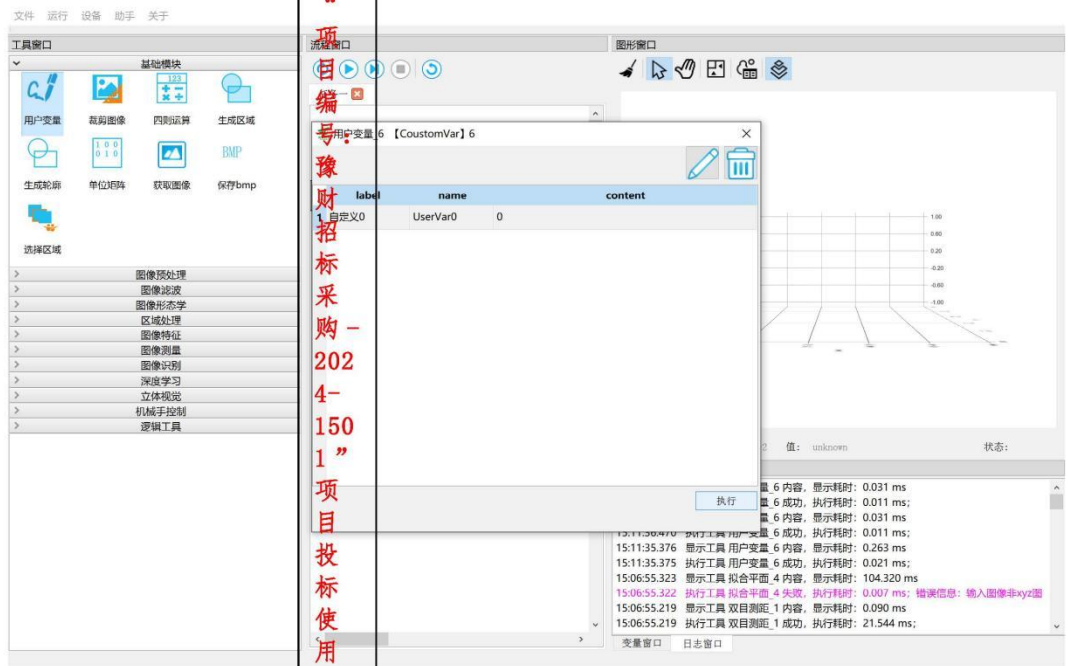


仅限于“项目编号：豫财招标采购-2024-1501”项目投标使用

逻辑流程图:



自定义变量:



仅限于“项目编号豫财招标采购-2024-1501”项目投标使用

变量赋值：

文件 运行 设备 助手 关于

工具窗口 基础模块

用户变量 裁剪图像 四则运算 生成区域

用户变量 7 【CustomVar】 7

label	name	content
		数据图像_1
		矩阵_2
		卡尺_3
		卡尺_4
		正矩形
		带方向的矩形
		执行

仅限于“项目编号：豫财招标采购-2024-1501”项目投标使用

图形窗口

图像: 0x1024x1 坐标: 232, -2 值: unknown 状态:

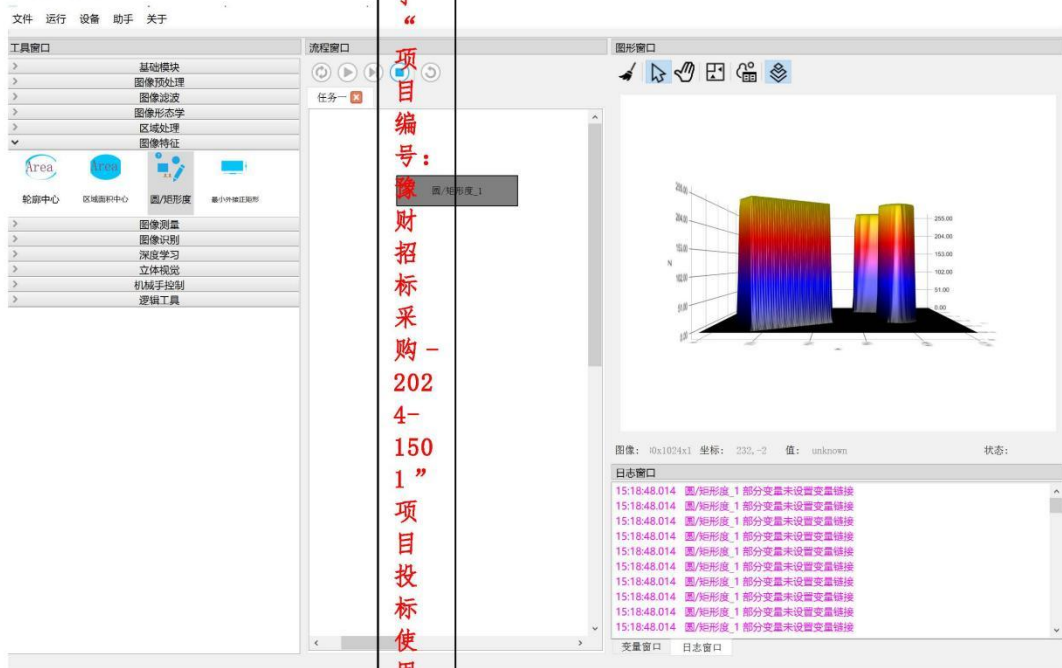
日志窗口

15:13:49.334 显示工具 用户变量 7 内容, 显示耗时: 0.022 ms;
15:13:49.334 执行工具 用户变量 7 成功, 执行耗时: 0.001 ms;
15:13:48.502 显示工具 用户变量 7 内容, 显示耗时: 0.029 ms;
15:13:48.502 执行工具 用户变量 7 成功, 执行耗时: 0.002 ms;
15:13:47.159 显示工具 用户变量 7 内容, 显示耗时: 0.036 ms;
15:13:47.159 执行工具 用户变量 7 成功, 执行耗时: 0.001 ms;
15:13:16.071 显示工具 带方向的矩形 内容, 显示耗时: 0.020 ms;
15:13:16.071 执行工具 带方向的矩形 成功, 执行耗时: 1.717 ms;
15:13:16.070 显示工具 正矩形 内容, 显示耗时: 0.035 ms;
15:13:16.070 执行工具 正矩形 成功, 执行耗时: 3.205 ms;

变量窗口 日志窗口

▲9.7、算法工具要求包含但不限于：用户变量、裁剪图像、四则运算、生成区域、生成轮廓、单位矩阵、获取图像、保存 bmp、选择区域、图像变换、颜色提取、颜色空间、动态阈值、边缘提取、图像灰度化、全局阈值、连通域筛选、高斯滤波、均值滤波、中值滤波、椒盐噪点、距离变换、区域差集、区域交集、区域形态学、区域并集一、区域并集二、连通域提取、区域填充、平均灰度值、区域转轮廓、轮廓中心、区域面积中心、圆/矩形度、最小外接正矩形、角平分线、线线夹角、线线间距、点线距离、点点距离、畸变矫正、线线交点、圆形卡尺、椭圆卡尺、直线卡尺、矩形卡尺、中垂线、投影坐标、多边形拟合、斑点分析、颜色识别、二维码识别、特征点分析、形状匹配、图像拼接、字符识别 MLP、字符识别 SVM、双目测距、正方体计算、拟合平面、XYZ 坐标获取、点云处理、坐标转换、机械手控制、机械手放取、i++工具、分支工具、条件表达式、Reset 工具、深度学习分类、深度学习目标检测、深度学习字符检测、深度学习字符识别等工具，为验证投标设备性能，投标提供圆/矩形度、最小外接正矩形、直线卡尺、投影坐标、颜色识别、图像拼接、字符识别 MLP、字符识别 SVM、双目测距、机械手控制、深度学习分类、深度学习目标检测、深度学习字符检测、深度学习字符识别工具功能软件操作界面截图加盖公章；

圆/矩形度：



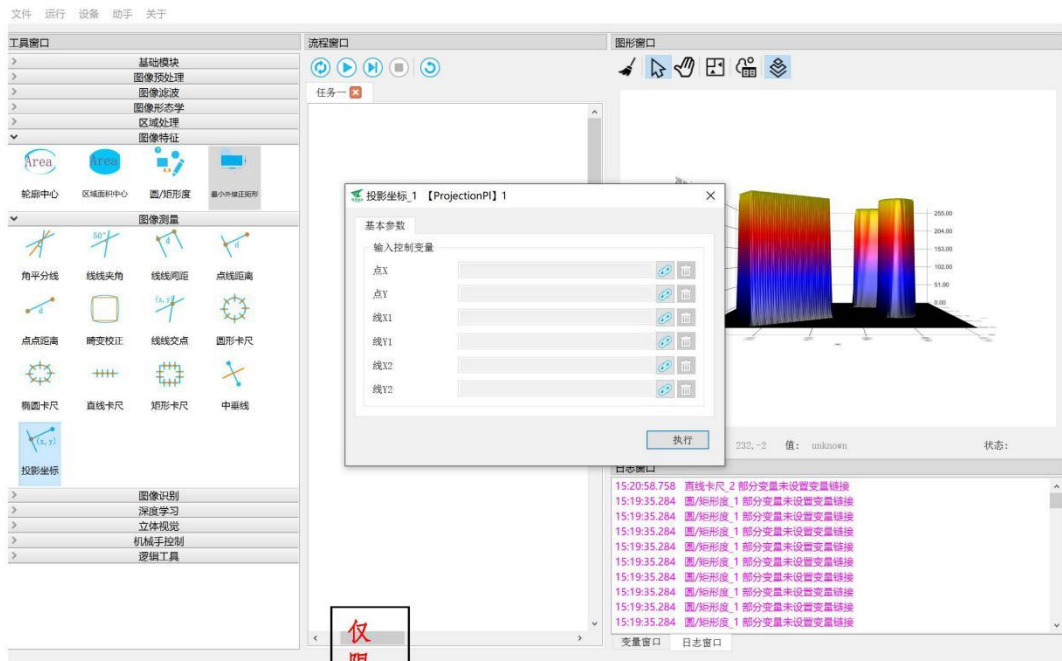
文件 运行 设备 助手 关于



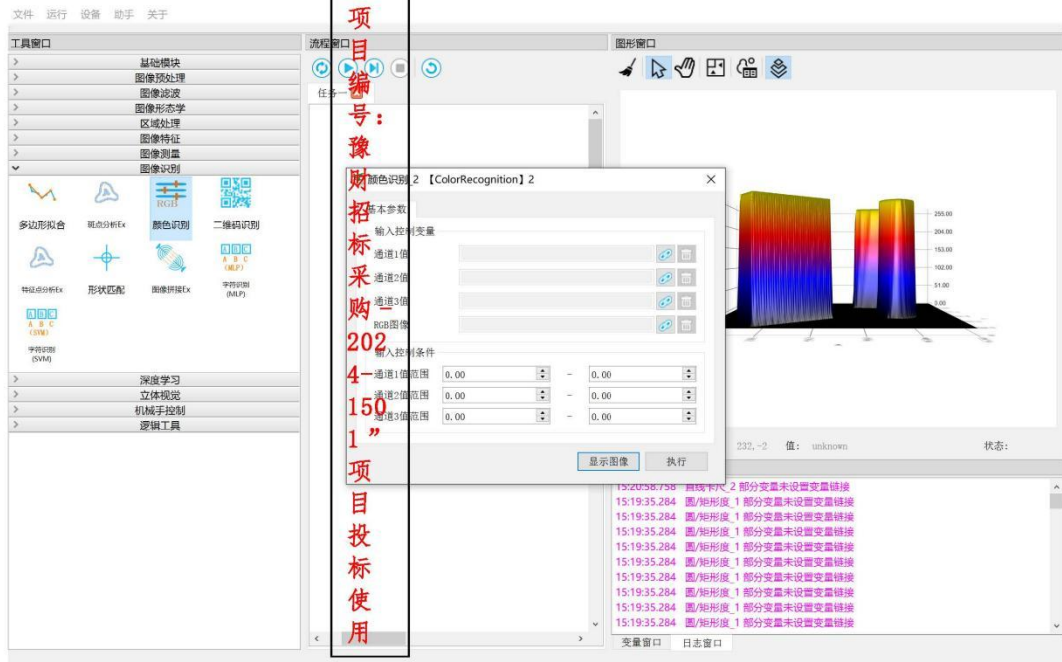
文件 运行 设备 助手 关于



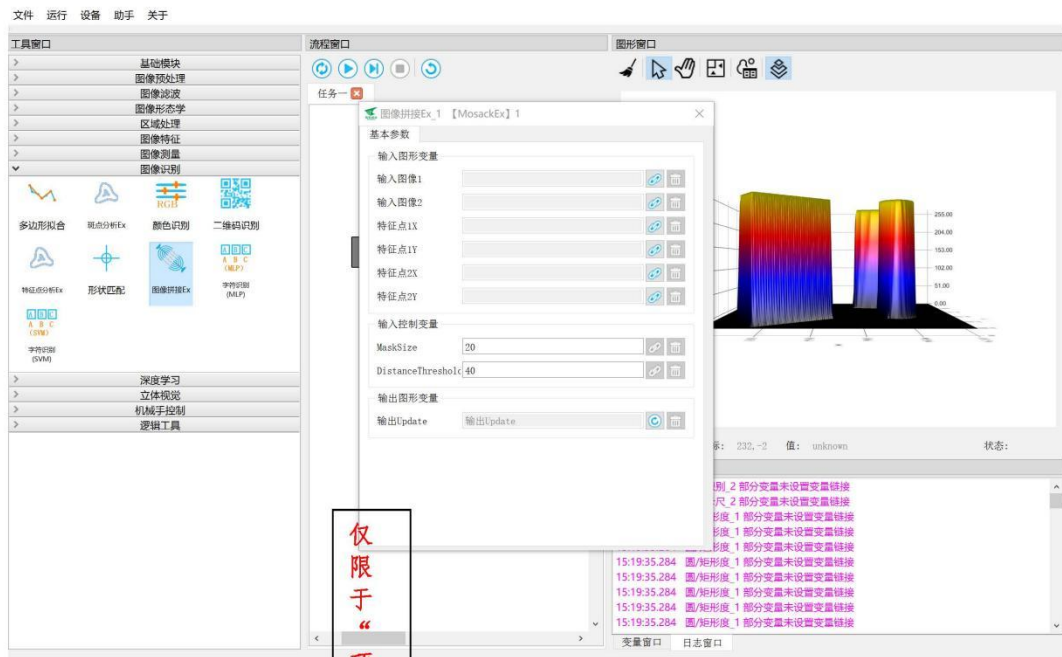
投影坐标:



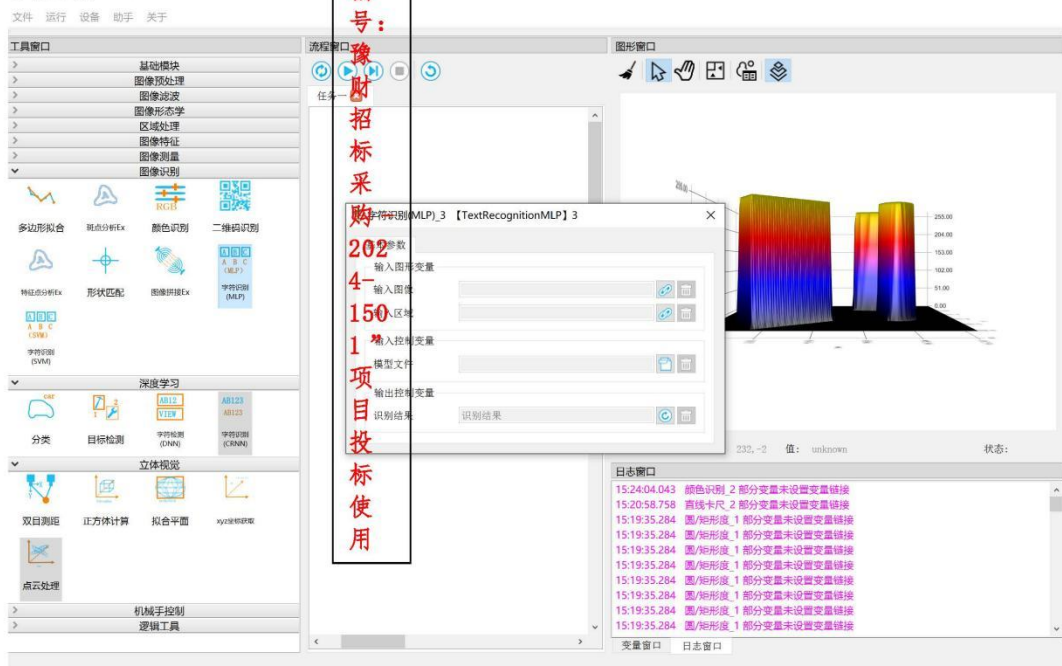
颜色识别:



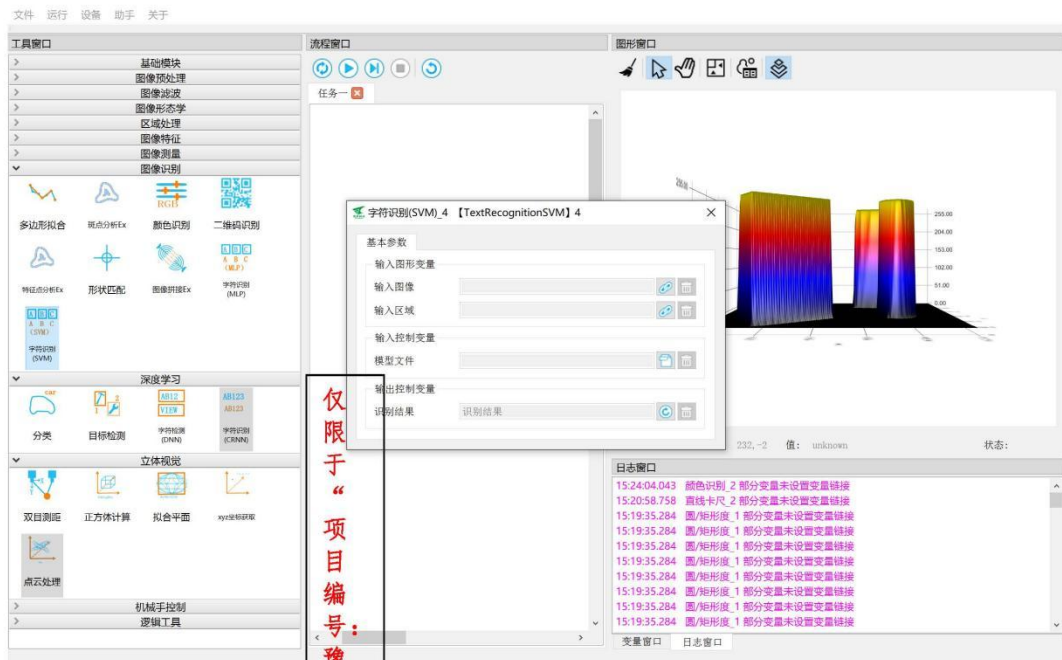
图像拼接:



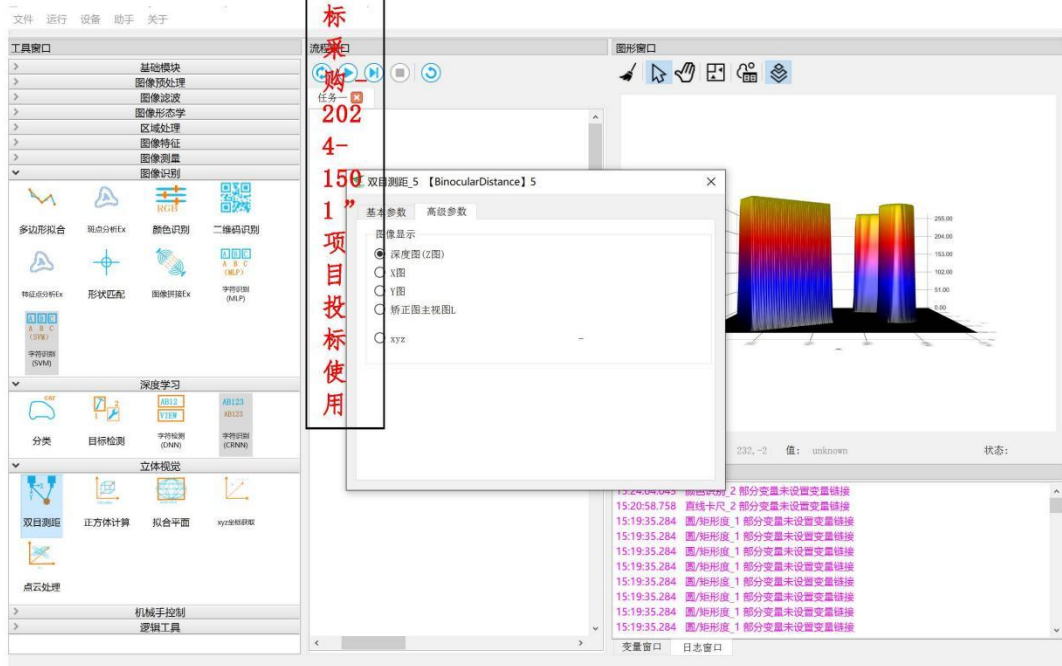
字符识别 MLP:



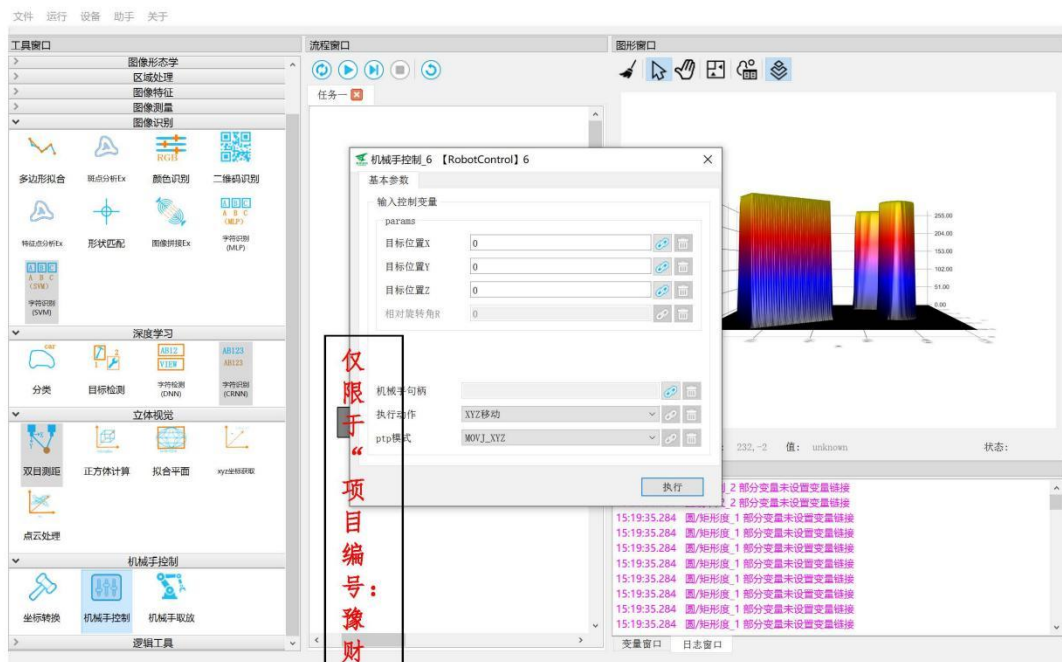
字符识别 SVM:



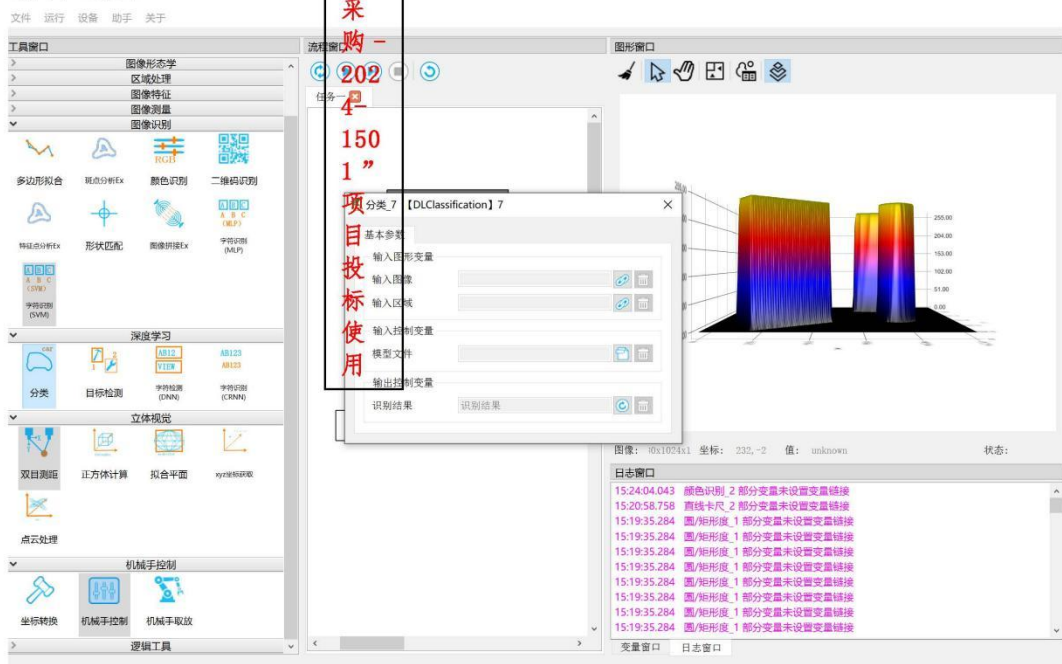
双目测距:



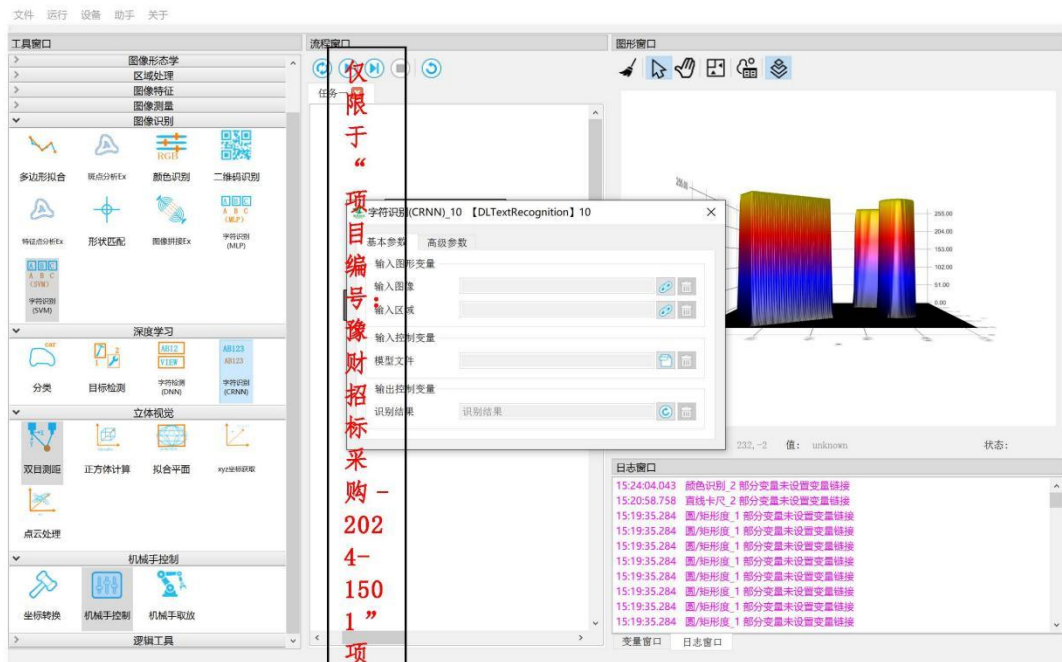
机械手控制



深度学习分类

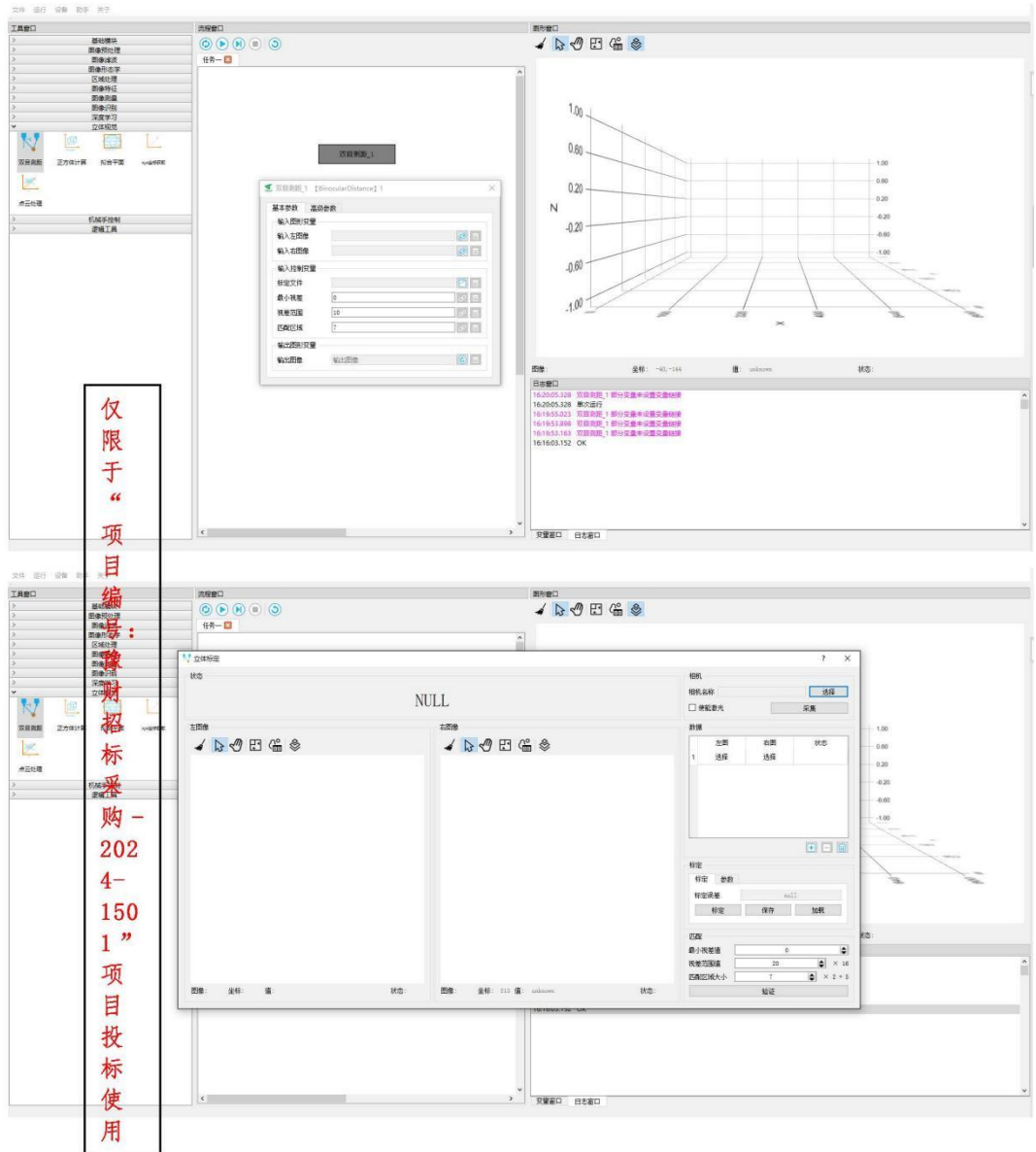


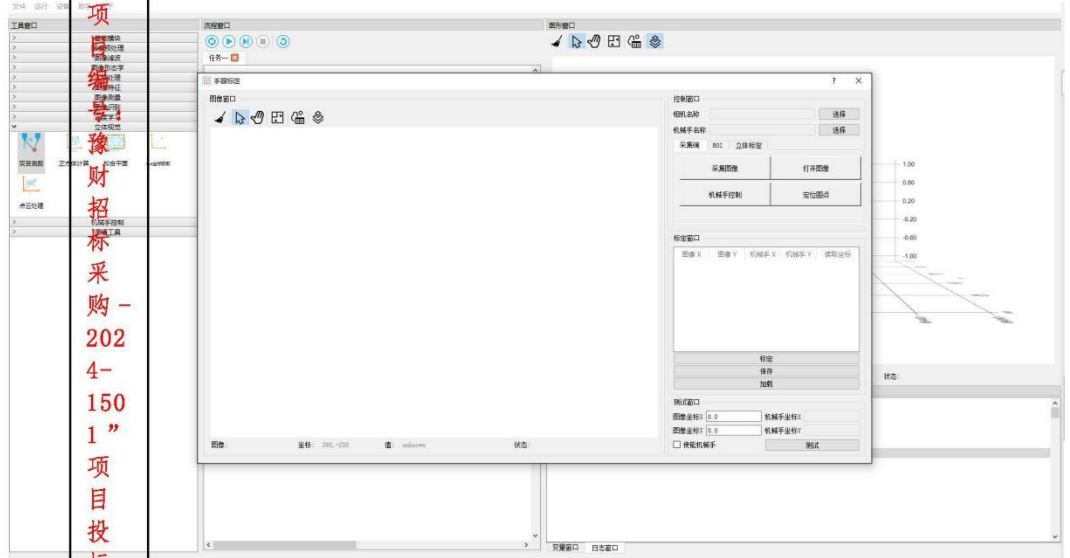
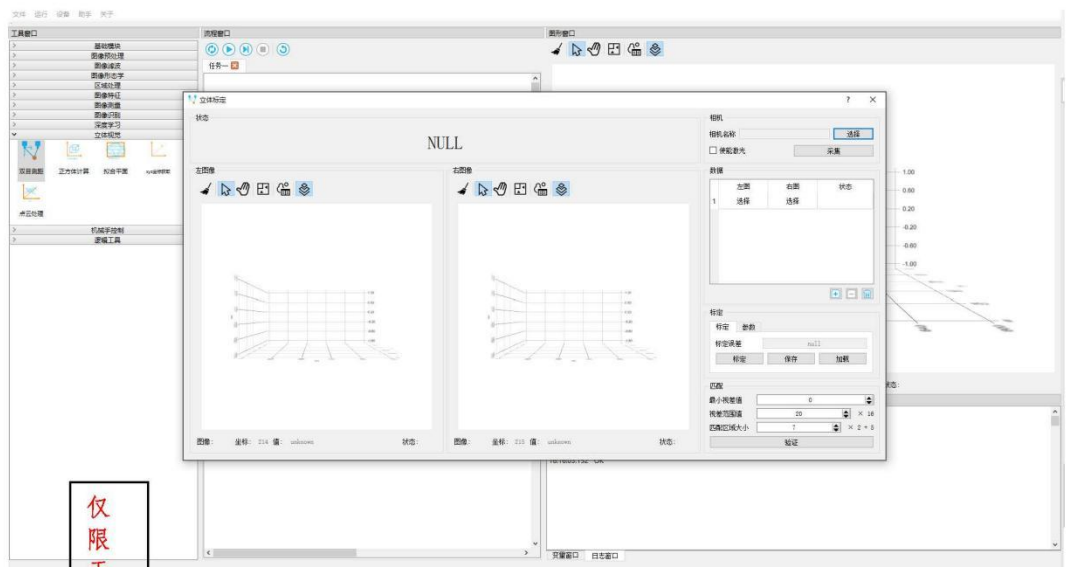
深度学习目标检测



7.5 函数库截图及证明材料

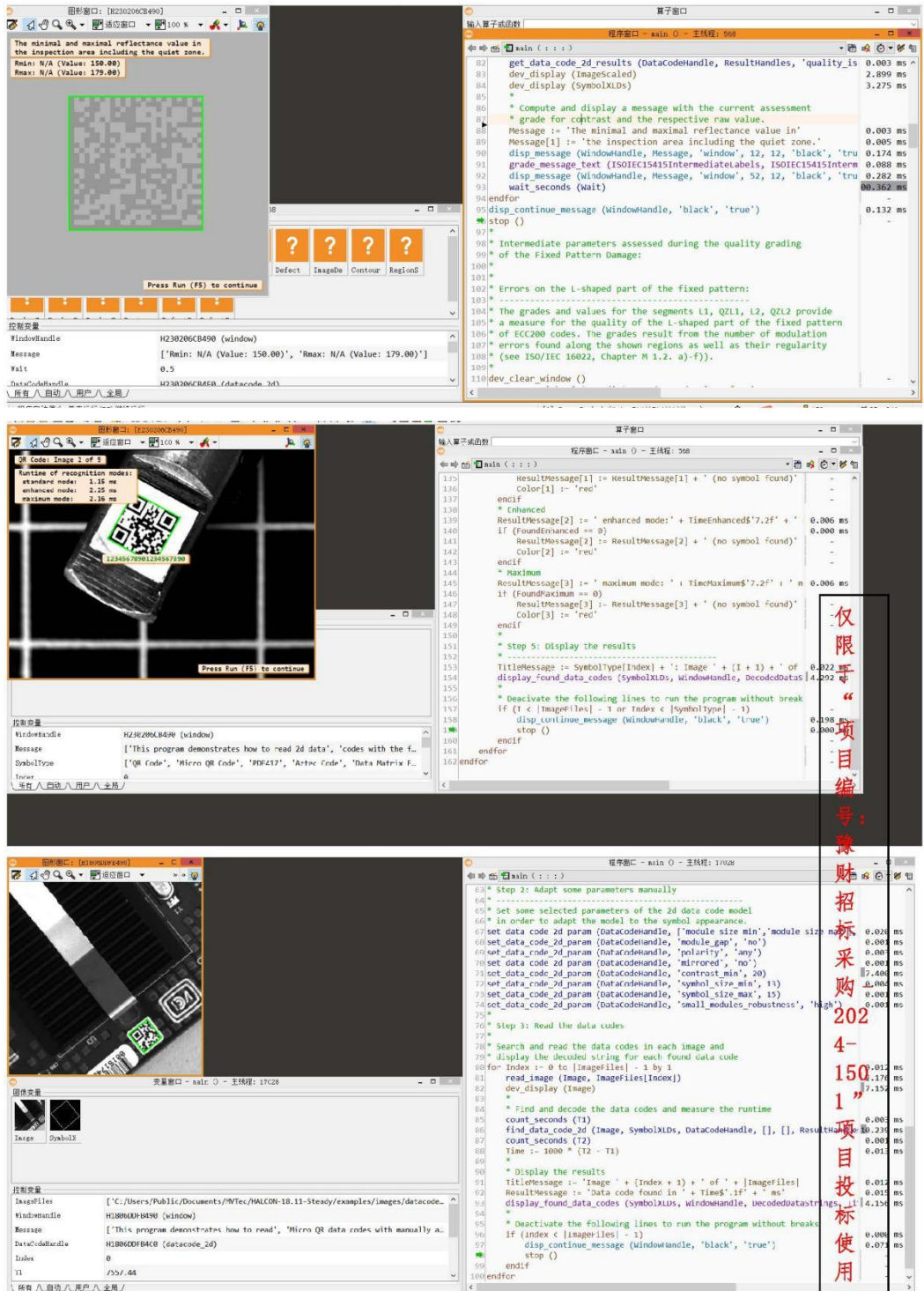
10.2、三维标定：线阵、面阵相机的3D定标，3D重构的多相机标定，机器人手眼标定，相机灰度值线性标定，为验证投标设备性能，投标提供以上功能截图加盖公章；

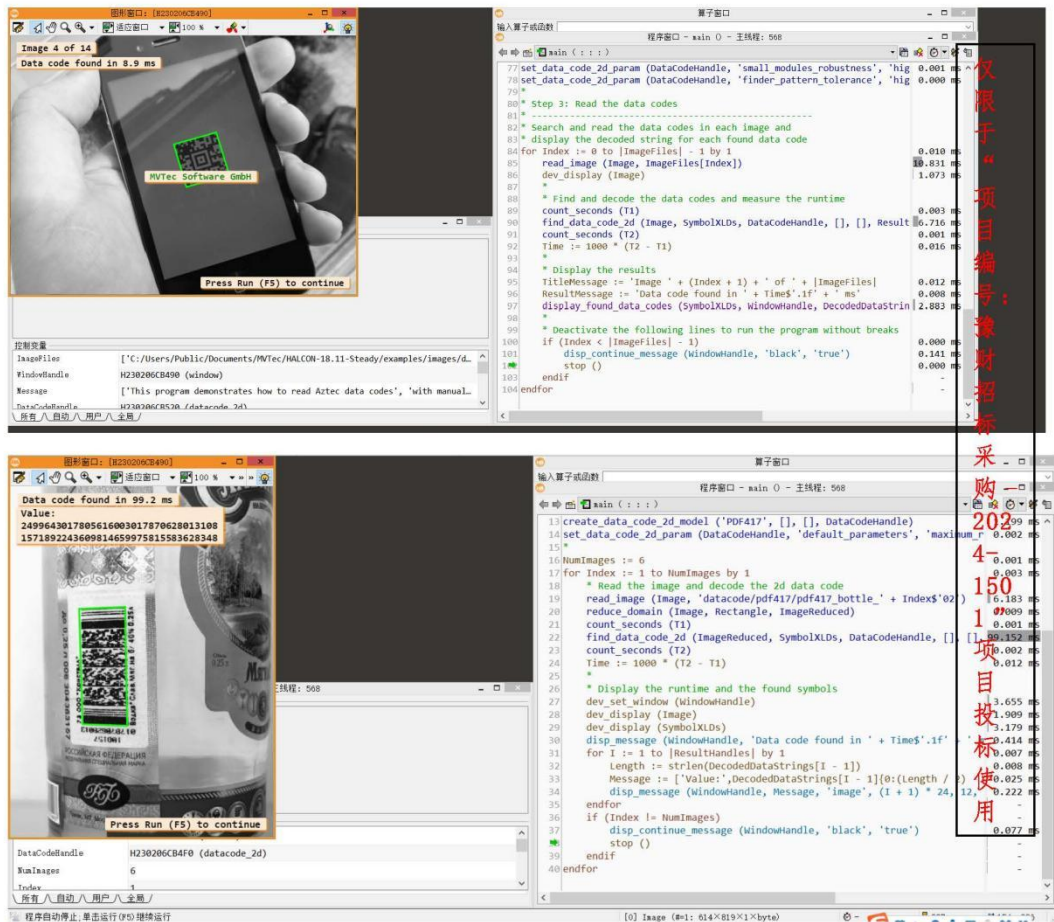




仅限于“项目编号：豫财招标采购-2024-1501”项目投标使用

10.14、支持 Dotcode 点码的读取拓展，为验证投标设备性能投标提供 3 种以上的验证代码和读取结果；





7.6 制造商授权函

制造商授权函

致：中弘天合工程咨询有限公司，河南科技大学

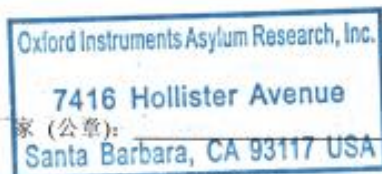
作为设在 7416 Hollister Avenue, Santa Barbara, CA 93117 的生产扫描探针显微镜的 Oxford Instruments Asylum Research, Inc. 在此以制造厂的名义授权 河南炎鸿电子科技有限公司，注册地址洛阳市西工区 310 国道与龙翔东路交叉口万众 e 家 7 幢 1 单元 1-2102 用我厂的原子扫描探针显微镜就 项目：项目编号：豫财招标采购-2024-1501，河南科技大学量子信息材料基础研究创新平台项目 2 标段 项目，递交投标文件并进行后续的签署合同和执行。

根据合同条款规定，我们在此保证为上述公司就此次招标而提交的设备承担全部质量保证责任。

出具授权书的制造厂家（公章）：

制造厂家代表及电话：李江军， 15117976863

日期：2025 年 01 月 11 日



7.7 制造商售后承诺函

制造商售后承诺函

致：中弘天合工程咨询有限公司，河南科技大学

牛津仪器 Oi Service 承诺为 项目编号：豫财招标采购-2024-1501，河南科技大学量子信息材料基础研究创新平台项目 2 标段 项目提供以下原子扫描探针显微镜售后服务：

牛津仪器 Oi Service 的专业技术服务工程师遍及全国主要城市，配合中国本地和全球在线专家及多个本地零配件库存和完善的物流网络，为中国用户提供及时、专业且优质的售后服务和技术支持。

牛津仪器 Oi Service 秉承完整产品生命周期服务理念，提供行业化服务解决方案和卓越的服务体验；通过持续创新和新服务技术应用，确保用户设备始终处于良好性能状态，帮助用户专注于专业领域和业务结果。

欢迎您扫描二维码，关注 Oi Service 售后服务小程序。“牛津仪器售后服务小程序”提供了在线咨询、仪器报修、安装申请、自助服务、在线商城、设备管理等诸多服务功能。牛津仪器客户联络中心的服务团队、在线支持工程师团队随时等待您的咨询，为您提供快速有效的服务和支持。牛津仪器 400 销售及服务热线、网页报修端等其他服务端口仍有效，您可以选择任意一种方式联系我们。

感谢您对牛津仪器设备和服务产品的信任和支持。通过完善的服务内容、系统化业务流程和业界领先的应用支持，牛津仪器客户服务将一如既往地助您取得成功。

Oxford Instruments/
7416 Hollis
Santa Barbara,



- **安装验收:**

1、合同签订后 10 个工作日内，向用户发出提供场地准备和安装要求的通知，如工作台、水、电、气等配套设施提出建议并出具场地准备书，协助用户做好安装前准备。货物到达用户所在地后，接到用户通知后 7 天内由我公司工程师负责在用户现场的安装和调试和培训。我公司自行负担安装期间工程师的费用。

2、发货前向用户及用户指定外贸公司提供设备供货清单，随设备提供技术资料，包括仪器说明书、操作手册。当货物到达用户指定的安装现场后，双方依据设备供货清单共同对设备进行开箱验收。

- **技术培训:** 在安装调试验收期间进行现场免费培训，安装培训时间不少于 3 天。培训内容：仪器工作原理、设备结构、操作步骤（包括控制器操作、面板操作、常见故障原因及排除）、主要部件用途、消耗品更换、日常保养等。培训以用户掌握仪器的操作和日常维护为准，人数为 2-5 人为佳。

- **保修与维修:**

（一）产品质量保证期:

1. 自验收合格之日起，所有投标产品质量保证期 1 年。保修期自仪器验收签字之日起计算。在保修期内，任何由制造商选材和制造不当引起的质量问题，厂家负责免费维修。保修期后，厂家提供终身维修，并保证零配件的供应。

（二）售后服务内容

1. 在质量保证期内应当为采购人提供以下技术支持和服务:

1.1 电话咨询

为采购人提供技术援助电话，解答采购人在使用中遇到的问题，及时为采购人提出解决问题的建议。

1.2 现场响应

采购人遇到使用及技术问题，电话咨询不能解决的，在 7 个工作日内到达现场进行处理，确保产品正常工作；

1.3 技术升级

在质保期内，如果投标人的产品技术升级，及时通知采购人，如采购人有相应要求，对采购人购买的产品进行升级服务。

1.4 为保证该项目的顺利实施，为本项目配备售后服务人员。

高级应用工程师介绍：

姓名	学历	工作经历	负责区域
竺仁	上海交通大学本科， 美国明尼苏达大学 (University of Minnesota) 博士研究 生	2016年博士毕业 后加入AR至今	全国
刘志文	大连理工大学本硕博 (1996-2006)	2006年加入安捷 伦AFM部门，期 间任应用科学家 经理 12 年，于 2018.02加入AR	全国

装机/维修工程师介绍：

姓名	学历	加入牛津AR 时间	工作区域
甘超业	清华大学化学系 硕士研究生	2015.06	北京办事处
董哲	加拿大Memorial University 硕士	2017.01	北京办事处

	研究生		
房茂东	华南理工大学硕 士	2017.10	广东办事处

2. 质保期外服务要求

2.1 质量保证期过后，同样提供免费电话咨询服务，并应承诺提供产品上门维护服务。

2.2 质量保证期过后，采购人需要继续由原投标人提供售后服务的，该投标人应以优惠价格提供售后服务。

（三）备品备件及易损件

售后服务中，维修使用的备品备件及易损件为原厂配件，未经采购人同意不得使用非原厂配件。



日期： 2025 年 01 月 11 日

Inc.
9
ISA

7.8 厂家成交案例

7.8.1 案例一

DocuSign Envelope ID: 2CA4EEDE-5FD2-4700-A8A8-BD93D64FB946

合同 CONTRACT

Contract No: 2023GY-083

The Buyer 买方: Keynat HongKong Co., Limited 捷诺达 (香港) 有限公司
Address 地址: RM 09,27/F, HO KING COMMERCIAL CENTRE, 2-16 FA YUEN STREET MONGKOK, KL, HONG KONG
Contact Person 联系人: 周春兵 Chunbing ZHOU
Email address 电子邮件: ahgyimo@163.com
Tel 电话: +852-3118 3083 Fax: +852-2110 0996

The Seller 卖方: Oxford Instruments Asylum Research, Inc.
Address 地址: 7416 Hollister Ave., Santa Barbara, CA 93117 USA
Contact Person 联系人: Lucky LIU
Email address 电子邮件: Lucky.Liu@oxinst.com
TEL (电话): +1-805-696-6466 FAX (传真): +1-805-696-6444

For the benefit of End-user 最终用户: Anhui Polytechnic University 安徽工程大学
Address 地址: Middle Beijing Road, Jiujiang District, Wuhu City, Anhui Province, 241000, China 安徽省芜湖市鸠江区北京中路 邮编 241000
Contact Person 联系人: 李天宇 Tianyu LI
Email address 电子邮件: jamesly1991@163.com
Tel 电话: +86-13485797245

The Consignee 收货人: AHGY IMP.&EXP. TRADING CO., LTD. 安徽国仪进出口贸易有限公司
Address 地址: 307-16, F3, Anhui Institute of Science and Technology, Building 8, No.128, Anhui Water Road, High-tech Zone, Hefei city, Anhui Province, China 安徽省合肥市高新区皖水路 128 号 8 号楼安徽省科学技术研究院 3 层 307-16
USCI: 91340104MA2UW1H2XQ
TEL: +86-551-64287884 FAX: +86-551-64287884
联系人: 周春兵 Chunbing ZHOU
邮箱: ahgyimo@163.com

1. This Contract is made by and between the Buyer and the Seller, whereas the Buyer agrees to buy and the Seller agrees to sell the under-mentioned goods according to the following terms and conditions: 本合同由买方及卖方共同订立, 根据本合同规定的条款, 买方同意购买, 卖方同意出售下述货物:

For and on beh
Keynat (Ho

Oxf
7
Sal

Goods and Specifications 货名与规格	Quantity 数量	Unit Price 单价 (USD)	Total Amount 总价 (USD)
Piezoresponse Force Microscope 压电力显微镜 型号: MFP-3D Origin+ Brand/品牌: Oxford Instruments	1 set	206,000.00	206,000.00
CIP (Shanghai Airport, China) Incoterms 2020			
Total Amount: CIP (Shanghai Airport, China) Incoterms 2020 USD 206,000.00 (SAY Two Hundred and Six Thousand Only)			
总价: CIP (中国上海机场) Incoterms 2020 价(共计 206,000.00 美元整)			

2. **Country of Origin and Manufacturer 生产地及制造厂商:**

USA/ Oxford Instruments Asylum Research, Inc.

美国 / 牛津仪器 Asylum Research 公司

3. **Packing 包装:**

By new strong wooden case(s) or carton(s) suitable for long distance transportation, multiple transportation and loading. Necessary measures shall be taken to protect the goods from moisture, rain, rust, corrosion, shock and damages according to their different shapes and special features so as to be able to withstand numerous handling, loading and unloading as well as long distance transportation, to ensure the goods' safe arrival at the worksite without any damage or corrosion.

包装须用坚固的新木箱或纸箱, 适合长途运输和多次搬运、装卸, 并根据货物的形状和特点采取防潮、防雨、防锈、防震、防腐蚀和防其它损害等必要的防护措施, 能承受多种处理, 装卸, 以及长途运输, 以保证货物安全无损地运抵工作现场。

4. **Shipping Mark 唛头:**

On the surface of each package, the package number, measurements, gross weight, net weight, the lifting positions, such cautions as "DO NOT STACK UPSIDE DOWN", "HANDLE WITH CARE", "KEEP AWAY FROM MOISTURE" and the following shipping mark shall be stenciled legibly by the Seller in fadeless paint:

卖方应在每件包装上用不褪色油墨清楚地印上包装编号、尺码、毛重、净重、吊装位置, “不可倒反叠起”, “小心处理”, “防潮” 等字样, 并刷有下列唛头:

A. Contract No. 合同号码: 2023GY-083

B. Shipping mark 唛头: 2023GY-083
SHANGHAI, CHINA

C. Destination 口岸: 上海机场, 中国 / SHANGHAI Airport, CHINA.

D. Consignee 收货人: 安徽国仪进出口贸易有限公司 AHGY IMP.&EXP. TRADINGCO., LTD.

5. **Shipment Date 发货时间:**

Subject to clauses 15 and 22 and, in particular, any delays attributable to the current COVID-19 pandemic, the estimated shipping date shall be within 6 months from execution of the Contract by both parties. Partial shipment is not allowed.

If there is a delay regarding the End User's facility, the Buyer shall inform the Seller at least 2 months in advance of the Shipment Date to allow the Seller to adjust the Shipment Date. Otherwise the Seller shall have the right to put the goods in storage and the relevant costs shall be borne by the Buyer.

除了第15条款的不可抗力情形和第22条款（特别的，由当前 COVID-19 大流行引起的任何延误）外，货物的预计装运期为双方签订合同后 6 个月内。不允许分批装运。

若最终用户的场地准备进度有延迟，买方务必在发货日期前至少两个月提前通知卖方调整发货时间，否则卖方有权按照买方延迟条款要求买方支付货物仓储费以及相关费用。

6. **Port of Shipment 装运口岸:**

Main Airport in USA. The goods shall be shipped by air in accordance with the Incoterms set out in clause 1.

美国主要机场。货物按第1条款中的 Incoterms 空运。

7. **Port of Destination 到货口岸:**

上海机场，中国 / SHANGHAI Airport, CHINA.

8. **Insurance 保险:**

To be covered by the Seller, issued by the insurance company, for 110% of the total value of the goods shipped against all risks and war risks. If the goods are damaged in the period of shipment, the Buyer will claim against the insurance company.

发货后由卖方按运货物总值的 110%，投保货到目的地的一切险和战争险。如果货物在装运期间受损，买方将向保险公司索赔。

9. **Terms of Payment 付款条件:**

9.1 The Buyer shall, one month before the Shipment Date, pay 100% of the contract value to the Seller by T/T.

买方应在发货日期前 1 个月以电汇方式向卖方支付 100% 合同总价。

9.2 The Buyer shall not delay payment for any reason. Time of payment is of the essence. Without limiting the Seller's remedies if payment is overdue, the Seller may suspend or delay performance (including but not limited to shipment) or refuse to perform its obligations in the Contract until the Seller has received the invoiced payment from the Buyer. If the Seller does not receive 100% of the contract value within 10 working days before the Shipment Date, the Shipment Date will be postponed accordingly. Title to the goods shall pass to the Buyer when the Seller has received full payment for the goods.

买方不得以任何理由延迟付款。付款时间至关重要。在不排除卖方其他法律权利的情况下，如买方延迟付款，卖方有权暂停或延迟履行（包括但不限于发货）或不履行合同中的义务直到卖方收到有关款项为止。如卖方没有在货物的装运期前 10 个工作日内收到 100% 合同总价，货物的装运期将相应推迟。卖方收到全款之后，买方才享有货物的所有权

10. Documents 文件:

10.1 Shipping Documents

装运文件

10.1.1 Airway bills marked 'Freight Prepaid' notifying the consignee, indicating Contract No., and shipping mark.

航空运单, 注明“运费已预付”, 通知收货人, 显示合同号和唛头。

10.1.2 Commercial invoice in three copies, indicating contract and shipping mark.

商业发票一式三份并注名合同及箱单号

10.1.3 Packing list in three copies.

装箱单一式三份

10.1.4 If the commodities are packed by wooden case, all the wood including those used to fix up the commodities in the container should be printed with the label "IPPC".

如为木质包装, 卖方需在所有木材上, 包括集装箱内用来固定货物的木板、木条等所有木质上, 打印“IPPC”

10.1.5 Insurance certificate, showing claim payable at destination in currency of the draft, covering all risks for 110% of the invoice value.

保险证明书, 可按投保货币在目的港索赔, 注明投保一切险, 投保金额为发票价值的 110%。

11. Commissioning and Site Acceptance Test 调试和现场验收:

The Buyer or End User shall ensure that the site has completed the preparation of water, electricity or other necessary facilities required for the installation and/or commissioning of the goods before the date of shipment. The Seller shall be given full co-operation and access at the working site of the Buyer's or End User's factory, for the installation and/or commissioning of the goods free of charge. Site acceptance testing ("SAT") shall be performed after installation and/or commissioning and the Buyer shall accept the goods on completion of the SAT in accordance with the Seller's acceptance protocol and an acceptance certificate shall be issued and signed by End User. If installation, commissioning and/or final acceptance is delayed by the Buyer or at the request of the End User for any reason not attributable to the Seller, by more than 90 days from the date of shipment or the original agreed shipment date of the goods, and/or if the goods have been put into use by the Buyer or End User, the goods will be deemed accepted and the warranty period will commence. If the goods have minor defect(s) and the defect(s) does not impede the intended use of the goods by the Buyer or End User, the Buyer or End User shall not withhold acceptance and the Seller shall correct the defect free of charge.

买方或最终用户应确保场地在装运日期前已完成安装和/或调试货物所需的水电气或其他必要设施之准备。卖方在买方或最终用户工厂内的工作现场应获得充分的配合和进出权限, 以便卖方免费安装和/或调试货物。现场验收测试 ("SAT") 在安装和调试后进行, 买方按照卖方的验收标准完成验收视为验收合格, 验收合格证书由最终用户签发。如买方延迟或最终用户要求卖方延迟货物的安装、调试和/或最终验收且该延迟原因不归结于卖方, 则自货物实际装运日或原装运日起 90 天后, 和/或若买方或最终用户已将货物投入使用, 货物将被视为通过验收且开始计算质保期。如果货物有小瑕疵且该瑕疵不妨碍买方对货物的预期使用, 则买方不得拒绝接受验收合格但不影响卖方免费纠正该瑕疵的义务。

12. **Quality Warranty 质量保证:**

The Seller shall guarantee that the goods correspond in all material respects with the quality specifications and performance as stipulated in this Contract. The Seller also warrants satisfactory operation of the goods under normal operation and adequate maintenance for (i) 12 months after acceptance upon the completion of SAT at the working site of the Buyer's or End User's factory; or (ii) 15 months from the date of shipment, whichever is earlier. The warranty period for any goods replaced or repaired pursuant to the initial warranty period shall be the remaining period, if any, of such initial warranty period. The warranty obligations are conditional upon the following requirements (i) the Seller has received full payment for the goods; (ii) the Buyer or End User promptly notifying the Seller of any defect and if required, promptly making the goods available for correction (iii) the goods has been used solely for its proper purpose and in accordance with the operating instructions; and (iv) the defect has not been caused by fire, accident, misuse, neglect, unauthorized alternation, repair or maintenance or the use of sub-standard consumables and has not arisen from fair wear and tear.

卖方保证货物符合本合同的主要规定的质量规格和性能。卖方并保证货物在正常使用和维修的情况下, (i)自货物在最终用户工厂现场验收之后 12 个月内运转良好; 或 (ii) 提供自发货日起 15 个月质保期, 以较早者为准。在初始质保期内经过更换或修理的任何货物的质保期应为该初始质保期的剩余期限(如有)。质量保证义务是以买方符合以下条件为前提 (i) 卖方已收到货物的全款。(ii) 买方或最终用户应及时通知卖方任何瑕疵, 如果需要, 买方或最终用户应及时允许卖方对货物作出更正。(iii) 货物只被买方或最终用户用于正当用途并根据正确的指示操作货物。(iv) 该瑕疵不是由火灾、事故、误用、疏忽、未经授权的更改、维修或维护或使用不合标准的消耗品引起的, 并且不是因正常磨损引起的。

13. **Inspection and Claims 检查和索赔:**

13.1 Upon arrival of the goods at the port of destination the Buyer shall inspect the goods in respect of their quality, specifications and quantity/weight, including an inspection of the condition of the boxes and an inspection of any "tip and tell" sensors or shock watches attached to the outside packaging of the goods. Should the quality, specification, or quantity be found not in conformity with the Contract, except for those claims which the insurance company or the owners of the vessel are liable, the Buyer shall have the right to give written notice with evidence to the Seller of any damage or claim within 30days of their delivery at the port of destination.

货物到达目的地口岸后, 买方应对货物质量、规格和数量/重量进行检验, 包括检查包装箱的状况以及检查在商品外包装上的任何“多角度倾斜指示器”或震动表。若货物的质量、规格或数量不符合本合同规定, 除应由保险公司或承运人负责的索赔外, 买方有权在货物交付目的地口岸后 30 天内以书面形式并附上相关证据向卖方发出损害赔偿或索赔通知。

13.2 Where the Seller accepts that it is responsible for the non-conformity and a claim is made by the Buyer within the period of claim stipulated above or within quality warranty period under this Contract after the goods are accepted, provided that the goods have been used solely for their proper purpose and in accordance with the operating instructions, and the defect has not been caused by an act or omission of the Buyer or fair wear and tear, the Seller shall settle the claim in the following ways:

若卖方接受其应对不合格情况负责并且买方在上文规定的索赔期限或本合同项下(货物验收后)的质保期内提出索赔, 如货物只被买方或最终用户用于正当用途并根据正确的指示操作货物, 且该瑕疵不是由买方造成, 不是因为因买方的疏忽或正常磨损引起的, 卖方应以下述方式解决

索赔:

- 13.2.1 replace the non-conforming goods or make up the deficiencies with new ones which conform to the specifications, quality and quantity/weight as stipulated in this Contract; or
以符合本合同规定的规格、质量和数量/重量要求的新产品更换不合格产品或补上短缺情况; 或
- 13.2.2 repair the non-conforming goods at the Seller's expense.
自行承担费用对不合格产品进行修理。

14. **Delay 延迟**

- 14.1 **Buyer's Delay:** The Buyer or End User shall submit the tax exemption application in a timely manner and complete the tax exemption process one month before the shipping date (if applicable). In the event that shipment of the goods is delayed beyond the shipment date for any reason not directly attributable to the Seller (including without limitation, delay due to the fault of the Buyer or End User, the Buyer's failure or refusal to bear any required taxes and duties, tax exemption process is not completed due to delay caused by the Buyer or End User, the inability of the Buyer or End User to receive the goods because their facility has not been built or is otherwise unfit or unready), save for Force Majeure Events, the Seller may place the goods into appropriate storage specified by the Seller. In such event the Seller's delivery obligations shall be deemed fulfilled and risk of loss and damage shall pass to the Buyer; and any amounts payable to the Seller on shipment shall be payable on presentation of the Seller's invoices; and all expenses incurred by the Seller, including, but not limited to, all expenses of preparation and shipment into storage, handling, storage, inspection, preservation and insurance shall be for the Buyer and the End User's account and shall be payable upon the Seller's presentation of invoices therefor.

买方延迟: 买方或最终用户需及时提交免税申请, 并在发货前一个月完成办理免税手续 (如适用)。若货物装运因不可直接归责于卖方的任何原因而延迟装运 (包括但不限于, 因买方或最终用户一方的过错而延迟、因买方没有或拒绝支付任何所需税款和关税所延迟、免税手续因买方或最终用户延迟提交申请而未及时完成、或买方或最终用户由于其设施尚未建造、不适用或未准备好而无法接收货物), 不可抗力情形除外, 卖方有权将该货物暂时存放在卖方指定的合适的仓库。在这种情况下, 卖方的交货义务应被视为已履行, 损失及损害风险应转移给买方; 买方应在卖方出示发票后支付卖方在交付时应付给卖方的任何款项; 卖方因此而产生的所有费用, 包括但不限于准备以及装运到仓库、处理、仓储检验、保存和保险的所有费用, 应由买方和最终用户承担并在卖方出示发票后支付。

15. **Force Majeure 不可抗力:**

The Seller shall not be held responsible for the delay in shipment or non-delivery of the goods due to an event beyond its reasonable control, including but not limited to fire, flood or act of god; natural disaster; armed conflict; terrorist attack; civil war; civil commotion or riots; war; sanctions or embargoes; any labour or trade disputes, strikes or industrial actions (whether involving employees of either party or of a third party); epidemic or pandemic; equipment or supply difficulties; any rule or action of any public authority; transportation delays; refusal or delay in granting or revocation, cancellation or withdrawal of any necessary licence, approval, consent or permit (a "Force Majeure Event"). The Seller shall advise the Buyer as soon as reasonably practicable of the occurrence mentioned above and as soon as reasonably practicable thereafter, the Seller shall send to the Buyer evidence thereof. If the Force Majeure Event lasts for more than 120 days, the Seller may terminate the Contract whereupon the Buyer shall pay a sum equal to the costs to the Seller of performing the Contract and the Seller's liability shall be limited to repayment of any sums paid in respect of undelivered goods less such costs.

如卖方在履行合同条款时，因以下不可抗力事件或无法控制的情形而延迟发货或不能交付货物，卖方均不需对另一方负责或承担责任。不可抗力事件包括但不限于以下事件：火灾、水灾或天灾、自然灾害、武器冲突、恐怖攻击、内乱、动乱或骚乱、战争、制裁、禁运或封锁、任何劳资纠纷、停工、人工短缺或罢工（牵涉任何一方或第三方员工）、大规模流行传染病、传染病、供应链中断、政府命令或法律、运输延误、任何所需的许可、批文、同意或批准被拒绝或延迟、撤消、取消或撤回。卖方应在合理可行的范围内尽快将上述事件告知买方，并在其后合理的范围内尽快将其证据发送给买方。如果不可抗力事件持续了 120 日以上，则卖方可以终止合同，且买方应向卖方支付卖方已履行部分合同的费用；如卖方已收到预付款，则卖方应在减去相关费用后偿还买方对未交付的货物已付的款项。

16. **Limitation of Liability 责任限制:**

The aggregate liability of the Seller for all breaches or non-performance of its obligations or contemplated by any Contract shall not exceed a sum equal to the total amount paid for the goods under this Contract save that this clause shall not limit or exclude any liability of the seller which cannot be effectively excluded in law.

卖方因为违反或不履行其在本合同项下的任何义务的总计赔偿责任应不超过本合同项下已付货款的总额，但本款规定不限制或排除卖方依法无法排除的任何责任。

17. **Exclusion of Liability 排除责任:**

The Seller shall not be liable for any loss which represents or which is loss of profit, revenue, benefit, anticipated savings or goodwill, loss of use of any asset, loss of data, business interruption, management costs or third party liability, or indirect, special or consequential losses.

卖方不对任何下列损失负责：利润损失、收入、利益、预期节省或商誉、对任何资产的使用损失、数据损失、商业中断、管理成本或第三方责任或任何间接损失或衍生性损失。

18. **Arbitration 仲裁:**

Any dispute arising out of or in connection with this Contract shall be settled through friendly negotiation. Should no settlement be reached through negotiation within 30 days, the case shall be submitted to the Hong Kong International Arbitration Centre ("HKIAC") for arbitration in accordance with the Arbitration Rules of HKIAC in force. The number of arbitrators shall be one. The arbitration proceedings shall be conducted in English. The arbitration fee(s) shall be borne by the losing party unless otherwise awarded by HKIAC. In the course of arbitration all parties shall continue to execute their respective obligations under this Contract except those under arbitration. The arbitral award shall be final and binding on all parties.

由本合同产生的或与本合同相关联的任何争议将通过友好协商解决。若无法在 30 天内协商达成一致，则应将争议提交香港国际仲裁中心按照其现行仲裁规则进行仲裁。仲裁员人数为一人。仲裁程序以英文进行。除非香港国际仲裁中心另有裁决，否则仲裁费用由败诉方负担。在仲裁过程中，各方将继续履行本合同中各自除仲裁之外的其它义务。仲裁裁决为终局裁决，对各方均具有约束力。

19. **Applicable Law 适用法律:**

This Contract is governed by the laws of Hong Kong.
本合同适用香港法律。

20. **Taxes, Tariffs and Duties 税金和关税:**

20.1 All taxes arising outside of China in connection with the execution of this Contract shall be borne by the Seller.

在中国境外发生的、与本合同的执行相关的所有税金均由卖方承担。

20.2 All taxes in connection with, and in the execution of this Contract to be levied by the Government of the P.R.C. on the Buyer in accordance with the tax laws in effect shall be borne by the Buyer. The Seller may choose to ship the goods in the event that the Buyer fails or refuses to bear any required taxes or duties.

在本合同执行过程中, 中华人民共和国政府根据现行税法的规定对买方征收与本合同相关的所有税金均由买方承担。如果买方没有或拒绝支付任何所需税款和关税所延迟或受影响, 卖方有权选择是否发货。

20.3 If any tariffs are imposed on the goods by the Government of the P.R.C, central bank or any local authorities due to any international trade disputes, the Buyer shall be responsible for such tariffs. The Buyer shall pay the Seller for such additional amount of tariffs paid by the Seller immediately against presentation of an invoice by the Seller.

若发生任何国际贸易纠纷, 则买方应负责由中华人民共和国政府、中央银行或者任何当地部门针对货物征收的任何额外关税费用。在卖方出示了发票之后, 买方应立即向卖方支付关税费用的相应金额。

21. **Intellectual Property Rights 知识产权**

Nothing in this Contract confers upon the Buyer any right, title or interest in the Seller's name or any trademarks, copyright, goodwill, patent (registered or unregistered), design (registered or unregistered), know-how (including but not limited to all inventions, discoveries, improvements and processes (whether patentable or non-patentable), copyright works (including without limitation computer programs), designs (whether or not registered or registrable and all other technical information of whatever nature) or other similar or analogous property or rights from time to time of the Seller or any third party. The Buyer shall not register any trademark, trade name, corporate name, logo, copyrights or design of the Seller or anything confusingly similar thereto anywhere in the world.

无其他授权。本协议中包含的任何规定均未将卖方名称中包含的任何权利、权属或利益赋予买方, 亦未将卖方或任何第三方不定期获得的商标、版权、商誉、专利(已注册或未注册)、设计(已注册或未注册)、技术诀窍(包括但不限于所有发明, 发现, 改进和过程(无论是可专利的还是非专利的)), 版权作品(包括但不限于计算机程序), 外观设计(无论是否已注册或可注册)以及所有其他性质的技术信息或者其他类似或相仿知识产权中包含的任何权利、权属或利益赋予买方。买方不得在世界范围内的任何地区对卖方的商标、商业名称、企业名称、徽标、版权或设计进行注册, 也不得注册与上述内容相混淆的任何其他类似内容。

22. **Export controls and compliance with law 出口管制与法律遵守**

22.1 The Seller shall comply with applicable laws relating to the goods, their use and disposal. The Buyer shall obtain in good time any applicable licences, permits and approvals in its control relating to import and to the installation and/or operation of the goods. The Seller shall not be responsible for any liability in relation to delay in obtaining or failure to obtain such licences, permits or approvals. The Buyer shall strictly comply with all applicable export laws, controls and regulations and if requested by the Seller

shall provide the Seller with an End User undertaking as soon as practically possible and in any event no later than seven (7) days of issue of the Buyer's purchase order. The Buyer acknowledges that export of the goods, any spare parts and components, and technical information, and the performance of the Seller's obligations in the Contract, are contingent upon the export controls of the UK, the US and other applicable jurisdictions dependant on their origin. The Seller shall not be liable to the Buyer in the event that the requisite governmental authorisations, permits, licences, consents cannot be obtained, or they are revoked, delayed, withdrawn, terminated or cancelled for whatever reason.

卖方应遵守与货物，其使用和处置有关的适用法律。买方应及时办理与进口以及货物的安装和/或操作相关的任何适用的许可证和批准。卖方不承担因买方延迟办理或未能获取此类许可证或批准的任何有关责任。买方应严格遵守所有适用的出口法律、控制和法规。若卖方要求，买方务必尽快或最迟在签署本合同后 7 天内给卖方提供 End User Undertaking (EUU)。买方认同任何卖方出口的货物，包括部件、技术信息或零备件等将受有关出口国（英国、美国或其他适用司法管辖区）的出口条规管制。卖方不对无法获得必要的政府授权，或由于任何原因有关政府授权被中途撤销、延迟或取消的情况承担责任。

- 22.2 The Buyer represents that it is not a Restricted Party, which shall be deemed to include any person or entity: (1) located in or a national of Cuba, Iran, Libya, North Korea, Sudan, Syria, or any other countries that may, from time to time, become subject to US, UK, EU or UN export controls for anti-terrorism reasons or with which US, UK or EU persons are generally prohibited from engaging in financial transactions; (2) on the US Department of Commerce Denied Person's List, Entity List, or Unverified List; US Department of the Treasury list of Specially Designated Nationals and Blocked Persons; or US Department of State List of Debarred Parties; (3) engaged in activities involving nuclear materials or weapons, missile or rocket technologies, or proliferation of chemical or biological weapons; or (4) affiliated with or a part of any non-US military organisation.

买方声明其不是以下所描述的受限制方，受限制方应包括以下任何个人或实体：（1）位于古巴、伊朗、利比亚、朝鲜、苏丹、叙利亚或任何其他可能出于反恐原因而不时被禁止与美国、英国或欧盟人员进行金融交易，因此会不时受到美国、英国、欧盟或联合国出口管制的约束；（2）在美国商务部的拒绝名单、实体名单或未验证名单中；美国财政部特别指定的国民和被禁止人员名单；或美国国务院禁止的政党名单；或（3）从事涉及核材料，武器，导弹，火箭技术或者化学武器或生物武器扩散的活动；或（4）与任何非美国军事组织有隶属关系或是其一部分。

- 22.3 The Buyer shall not export, re-export, divert, transfer or disclose, directly or indirectly, any goods or related technical data, materials or documents or any product thereof to any Restricted Party or to any country (or any national or resident thereof) which the US or UK Government determines from time to time is a country (or end-user) to which such export, re-export, diversion, transfer or disclosure is restricted, without obtaining the prior written authorisation of the Seller and the applicable Government agency.

在没有提前得到卖方以及有关政府机构的书面同意下，买方不得直接或间接出口、再出口、转移或披露任何关于此合同货物或其相关技术数据、材料或文件或任何有关产品给第三方或任何被英国或美国政府列为受限制的国家（或其国民或居民）。

23. Confidentiality 保密规定

No party hereto shall disclose or divulge to any third party any proprietary technical information, data, know-how or other information of a confidential nature (hereinafter referred to as the "Confidential Information") which is disclosed to it by the other party hereto under or in connection with this Contract, except that the receiving party may disclose the Confidential Information with the prior written consent of the disclosing party, or the receiving party makes such disclosure only to the necessary extent to perform this Contract.

本合同的任何一方均不得向第三方披露或者泄露由本合同其中一方或向另一方披露的任何专属技术信息、数据、技术诀窍或者所有其他机密性质的信息、本合同项下或者与本合同有关的事项（以下简称为“保密信息”），除非接收方仅在履行本合同的必要范围内进行披露，或接收方已获得透露方出具的书面同意，接收方可透露保密信息。

24. General Terms 一般条款

24.1 All appendices attached hereto (including the Quotation) shall constitute an integral part of this Contract. 本合同的所有附录（包括报价单）构成本合同不可分割的一部分。

24.2 This Contract shall come into effect after this Contract is signed by the duly authorized representatives of both parties and sealed. 本合同将于双方合法授权代表签署、加盖公司公章后生效。

24.3 Failure or delay by either Party to request execution of any provision of this Contract shall not be construed as a waiver of any right or in any way affect the validity of the other provisions of this Contract at any future time.

若合同任一方未能或延迟要求执行本合同中的任何条款，其不应解释为该方放弃任何权利，也不会以任何方式在以后任何时间内影响本合同其他条款的效力。

24.4 Without the prior written consent of the other party, this Contract shall not be transferred, nor shall its rights and obligations under this Contract be transferred

未经另一方事先书面许可，否则不得转让本合同，也不得转让其在本合同项下的权利和义务。

24.5 The relationship between Buyer and Seller hereinafter shall be solely that of Buyer and Seller. No party hereto shall have the right to act as an agent or representative of any other party.

本合同中买卖双方的关系应仅为买方和卖方之间的关系。合同中的任何一方均没有权利作为另一方的代理或代表。

24.6 Any amendment or alteration to this Contract shall be effective only upon signing of an instrument in writing by the duly authorized representatives of the parties hereto.

本合同的任何修订与更改仅在合同双方合法授权的代表签署了书面文件后才生效。

24.7 Other matters not mentioned herein shall be settled by friendly consultations of two parties.

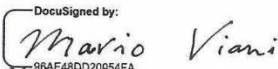
本合同未尽事宜应由双方通过相互协商讨论确定。

- 24.8 Provisions in this Contract shall be independent from each other. Any provision that is ineffective, invalid or revoked by courts shall not affect the legality and validity of the remaining provisions.
本合同中各条款的效力相互独立，任一条款不生效、无效或被法院撤销并不影响其他条款的效力。
- 24.9 Headings to clauses are inserted for the purposes of convenience only and shall not affect the scope or construction of any clause or provision.
本合同的标题仅是为了方便而使用，不影响任何条款和规定的范围和解释。
- 24.10 This Contract is made in both Chinese and English in two (2) originals respectively, one (1) for Seller and the other one (1) for Buyer. It has the same legal effect. In case of any inconsistency between the English and Chinese descriptions, the English version shall prevail.
本合同用中英文对照写成，为正本两（2）份，卖方一份，买方一份，具有相同法律效力。当中英文描述内容不一致时，以英文版本为准。

The Buyer 买方: Keynat (HongKong) Co., Limited 捷诺达（香港）有限公司
Keynat (HongKong) Co., Limited

Signature: 
Name: _____
Position: _____ Authorized Signature(s)
Date: _____

The Seller 卖方: Oxford Instruments Asylum Research, Inc.

Signature: 
Name: Mario Viani
Position: President
Date: 24-May-2023

DocuSigned by:
Mario Viani
98AE48DD20954FA

Oxford Instruments Asylum Research, Inc.
7416 Hollister Avenue
Santa Barbara, CA 93117 USA

APPENDIX

配置清单

ATTACHMENT FOR 2023GY-083

序号	型号	产品描述	数量
1	MFP-3D Origin+ 原子力显微镜主机	MFP-3D Origin+标准型原子力显微镜：MFP-3D Origin+标准型原子力显微镜是一款具有低噪音，高精度的闭环控制多功能原子力显微镜。独特的三轴分离式扫描器，通过单一扫描器实现 120μm 扫描范围到原子级分辨率的 AFM。支持所有主流 AFM/SPM 模式。高度模块化的硬件和软件架构支持用户对系统进行扩展。	1
2	Minus.K 防震平台	高性能防震平台。隔绝外部振动，保证系统正常工作。该附件是保证 MFP-3D 正常工作的标配。	1
3	Hood 隔音罩	MFP-3D Origin+专用隔音罩(国产)，隔绝声音以及气流影响，保证实验精度	1
4	PFM-AC 高压 PFM 模块	智能化高压 PFM 模块：模块本身能直接输出（不需要外接放大器）高达 220V 的测试电压，该模块包含：高压放大电路，高压探针夹持器，高压样品夹持器。	1
5	CTRL-HTR 环境控制器	环境控制器：用于和电化学液池以及温控模块的联用	1
6	PHEAT-PEEK 材料高温加热器	材料高温加热器：全密闭环境下的变温，最大限度的保证样品加热的均一性，并且该环境腔上还留有气体通路能够实时控制样品腔内的气氛环境，实现特定气氛中的 AFM 测试，有效的避免了空气中的水汽在加热过程的影响。	1

Limited

Signature(s)

Inc.
SA

7.8.2 案例二

DocuSign Envelope ID: BA5F633E-7B0B-4190-B0D6-63544F52524B

合同 CONTRACT

Contract No: HQ2024-GLUT-C1

The Buyer 买方: New Business International Trading Co., Ltd.
Address 地址: Unit 02-03,26/F, Enterprise Square Two, No.3 Sheung Yuet Road, Kowloon Bay, Hong Kong
Contact Person 联系人: YANG Alison
Email address 电子邮件: biyingyang@nbi.com.hk
Tel 电话: (020)-87687116

The Seller: Oxford Instruments Asylum Research, Inc.
Address 地址: 7416 Hollister Avenue, Santa Barbara, California 93117, USA

For the benefit of End-user 最终用户: 桂林理工大学 Guilin university of technology
地址: 广西桂林市建干路 12 号
Address: No.12 Jiangan Road, Guilin City, Guangxi

收货人: 广东省中科进出口有限公司
Consignee: Zhongke Scientific & Technical Co., Ltd.
地址: 广州市越秀区先烈中路100号大院9号楼一楼
Address: 1F, Building9, 100Xianlie Road, Guangzhou, China
USCI: 914400001903678493
联系人Contact: Zeng Fanzhen
Tel: +86 18620616863

1. This Contract is made by and between the Buyer and the Seller, whereas the Buyer agrees to buy and the Seller agrees to sell the under-mentioned goods according to the following terms and conditions: 本合同由买方及卖方共同订立, 根据本合同规定的条款, 买方同意购买, 卖方同意出售下述货物:

Goods and Specifications 货名与规格	Quantity 数量	Unit Price 单价 (USD)	Total Amount 总价 (USD)
Atomic Force Microscopy 原子力显微镜 Model/型号: MFP-3D Origin+ Brand/品牌: Oxford Instruments	1 set	217,000 USD	217,000 USD
Total Amount: CIP (Guangzhou Airport, China) Incoterms 2020 (Say USD Two Hundred and Seventeen Thousand Only) 总价: CIP (广州机场) Incoterms 2020 价(共计贰拾壹万柒仟美元整)			

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For and
NEW BUSI
者

2. **Country of Origin and Manufacturer 产地及制造厂商:**

USA/ Oxford Instruments Asylum Research, Inc.

美国 / 牛津仪器 Asylum Research 公司

3. **Packing 包装:**

By new strong wooden case(s) or carton(s) suitable for long distance transportation, multiple transportation and loading. Necessary measures shall be taken to protect the goods from moisture, rain, rust, corrosion, shock and damages according to their different shapes and special features so as to be able to withstand numerous handling, loading and unloading as well as long distance transportation, to ensure the goods' safe arrival at the worksite without any damage or corrosion.

包装须用坚固的新木箱或纸箱, 适合长途运输和多次搬运、装卸, 并根据货物的形状和特点采取防潮、防雨、防锈、防震、防腐蚀和防其它损害等必要的防护措施, 能承受多种处理, 装卸, 以及长途运输, 以保证货物安全无损地运抵工作现场。

4. **Shipping Mark 唛头:**

On the surface of each package, the package number, measurements, gross weight, net weight, the lifting positions, such cautions as "DO NOT STACK UPSIDE DOWN", "HANDLE WITH CARE", "KEEP AWAY FROM MOISTURE" and the following shipping mark shall be stenciled legibly by the Seller in fadeless paint:

卖方应在每件包装上用不褪色油墨清楚地印上包装编号、尺码、毛重、净重、吊装位置, "不可倒反叠起", "小心处理", "防潮" 等字样, 并刷有下列唛头:

A. Contract No. 合同号码: HQ2024-GLUT-C1

B. Shipping mark 唛头: ZKWJXBJ23036-GLUT-1

GUANGZHOU, CHINA

C. Destination 口岸: Guangzhou Airport, China 中国广州机场

D. Consignee 收货人:

收货人: 广东省中科进出口有限公司

Consignee: Zhongke Scientific & Technical Co., Ltd.

5. **Shipment Date 发货时间:**

Subject to clauses 15 and 22 and, in particular, any delays attributable to the current COVID-19 pandemic, the estimated shipping date shall be within 6 months from execution of the Contract by both parties. Partial shipment is not allowed.

If there is a delay regarding the End User's facility, the Buyer shall inform the Seller at least 2 months in advance of the Shipment Date to allow the Seller to adjust the Shipment Date. Otherwise the Seller shall have the right to put the goods in storage and the relevant costs shall be borne by the Buyer.

除了第15条款的不可抗力情形和第22条款(特别的, 由当前 COVID-19 大流行引起的任何延误)外, 货物的预计装运期为双方签订合同后 6 个月内。不允许分批装运。

若最终用户的场地准备进度有延迟, 买方务必在发货日期前至少两个月提前通知卖方调整发货时间, 否则卖方有权按照买方延迟条款要求买方支付货物仓储费以及相关费用。

6. **Port of Shipment 装运口岸:**

Main Airport in USA. The goods shall be shipped by air in accordance with the Incoterms set out in clause 1.

美国主要机场。货物按第 1 条款中的 Incoterms 空运。

7. **Port of Destination 到货口岸:**

Guangzhou Airport, China

中国广州机场

8. **Insurance 保险:**

To be covered by the Seller, issued by the insurance company, for 110% of the total value of the goods shipped against all risks and war risks. If the goods are damaged in the period of shipment, the Buyer will claim against the insurance company.

发货后由卖方按装运货物总值的 110%, 投保货到目的地的一切险和战争险。如果货物在装运期间受损, 买方将向保险公司索赔。

9. **Terms of Payment 付款条件:**

9.1 The Buyer shall, one month before the Shipment Date, pay 100% of the contract value to the Seller by T/T. 买方应在发货日期前 1 个月以电汇方式向卖方支付 100% 合同总价。

9.2 The Buyer shall not delay payment for any reason. Time of payment is of the essence. Without limiting the Seller's remedies if payment is overdue, the Seller may suspend or delay performance (including but not limited to shipment) or refuse to perform its obligations in the Contract until the Seller has received the invoiced payment from the Buyer. If the Seller does not receive 100% of the contract value within 10 working days before the Shipment Date, the Shipment Date will be postponed accordingly. Title to the goods shall pass to the Buyer when the Seller has received full payment for the goods.

买方不得以任何理由延迟付款。付款时间至关重要。在不排除卖方其他法律权利的情况下, 如买方延迟付款, 卖方有权暂停或延迟履行 (包括但不限于发货) 或不履行合同中的义务直到卖方收到有关款项为止。如卖方没有在货物的装运期前 10 个工作日内收到 100% 合同总价, 货物的装运期将相应推迟。卖方收到全款之后, 买方才享有货物的所有权。

10. **Documents 文件:**

10.1 **Shipping Documents**

装运文件

10.1.1 **Airway bills marked 'Freight Prepaid'.**

航空运单, 注明“运费已预付”。

10.1.2 **Commercial invoice in three copies, indicating contract and shipping mark.**

商业发票一式三份并注明合同及箱单号

10.1.3 **Packing list in three copies.**

装箱单一式三份

- 10.1.4 If the commodities are packed by wooden case, all the wood including those used to fix up the commodities in the container should be printed with the label "IPPC".

如为木质包装, 卖方需在所有木材上, 包括集装箱内用来固定货物的木板、木条等所有木质上, 打印"IPPC"

- 10.1.5 Insurance certificate, showing claim payable at destination in currency of the draft, covering all risks for 110% of the invoice value.

保险证明书, 可按投保货币在目的港索赔, 注明投保一切险, 投保金额为发票价值的 110%。

11. **Commissioning and Site Acceptance Test 调试和现场验收:**

The Buyer or End User shall ensure that the site has completed the preparation of water, electricity or other necessary facilities required for the installation and/or commissioning of the goods before the date of shipment. The Seller shall be given full co-operation and access at the working site of the Buyer's or End User's factory, for the installation and/or commissioning of the goods free of charge. Site acceptance testing ("SAT") shall be performed after installation and/or commissioning and the Buyer shall accept the goods on completion of the SAT in accordance with the Seller's acceptance protocol and an acceptance certificate shall be issued and signed by End User. If installation, commissioning and/or final acceptance is delayed by the Buyer or at the request of the End User for any reason not attributable to the Seller, by more than 90 days from the date of shipment or the original agreed shipment date of the goods, and/or if the goods have been put into use by the Buyer or End User, the goods will be deemed accepted and the warranty period will commence. If the goods have minor defect(s) and the defect(s) does not impede the intended use of the goods by the Buyer or End User, the Buyer or End User shall not withhold acceptance and the Seller shall correct the defect free of charge.

买方或最终用户应确保场地在装运日期前已完成安装和/或调试货物所需的水电气或其他必要设施之准备。卖方在买方或最终用户工厂内的工作现场应获得充分的配合和进出权限, 以便卖方免费安装和/或调试货物。现场验收测试 ("SAT") 在安装和调试后进行, 买方按照卖方的验收标准完成验收视为验收合格, 验收合格证书由最终用户签发。如买方延迟或最终用户要求卖方延迟货物的安装、调试和/或最终验收且该延迟原因不归咎于卖方, 则自货物实际装运日或原装运日起 90 天后, 和/或若买方或最终用户已将货物投入使用, 货物将被视为通过验收且开始计算质保期。如果货物有小瑕疵且该瑕疵不妨碍买方对货物的预期使用, 则买方不得拒绝接受验收合格但不影响卖方免费纠正该瑕疵的义务。

12. **Quality Warranty 质量保证:**

The Seller shall guarantee that the goods correspond in all material respects with the quality specifications and performance as stipulated in this Contract. The Seller also warrants satisfactory operation of the goods under normal operation and adequate maintenance for (i) 12 months after acceptance upon the completion of SAT at the working site of the Buyer's or End User's factory; or (ii) 15 months from the date of shipment, whichever is earlier. The warranty period for any goods replaced or repaired pursuant to the initial warranty period shall be the remaining period, if any, of such initial warranty period. The warranty obligations are conditional upon the following requirements (i) the Seller has received full payment for the goods; (ii) the Buyer or End User promptly notifying the Seller of any defect and if required, promptly making the goods available for correction (iii) the goods has been used solely for its proper purpose and in accordance with

the operating instructions; and (iv) the defect has not been caused by fire, accident, misuse, neglect, unauthorized alternation, repair or maintenance or the use of sub-standard consumables and has not arisen from fair wear and tear.

卖方保证货物符合本合同的主要规定的质量规格和性能。卖方并保证货物在正常使用和维修的情况下, (i) 自货物在最终用户工厂现场验收之后 12 个月内运转良好; 或 (ii) 提供自发货日起 15 个月质保期, 以较早者为准。在初始质保期内经过更换或修理的任何货物的质保期应为此初始质保期的剩余期限 (如有)。质量保证义务是以买方符合以下条件为前提 (i) 卖方已收到货物的全款。(ii) 买方或最终用户应及时通知卖方任何瑕疵, 如果需要, 买方或最终用户应及时允许卖方对货物作出更正。(iii) 货物只被买方或最终用户用于正当用途并根据正确的指示操作货物。(iv) 该瑕疵不是由火灾、事故、误用、疏忽、未经授权的更改、维修或维护或使用不标准的消耗品引起的, 并且不是因正常磨损引起的。

13. **Inspection and Claims 检查和索赔:**

- 13.1 Upon arrival of the goods at the port of destination the Buyer shall inspect the goods in respect of their quality, specifications and quantity/weight, including an inspection of the condition of the boxes and an inspection of any "tip and tell" sensors or shock watches attached to the outside packaging of the goods. Should the quality, specification, or quantity be found not in conformity with the Contract, except for those claims which the insurance company or the owners of the vessel are liable, the Buyer shall have the right to give written notice with evidence to the Seller of any damage or claim within 14 days of their delivery at the port of destination.

货物到达目的地口岸后, 买方应对货物质量、规格和数量/重量进行检验, 包括检查包装箱的状况以及检查在商品外包装上的任何“多角度倾斜指示器”或震动表。若货物的质量、规格或数量不符合本合同规定, 除应由保险公司或承运人负责的索赔外, 买方有权在货物交付目的地口岸后 14 天内以书面形式并附上相关证据向卖方发出损害赔偿或索赔通知。

- 13.2 Where the Seller accepts that it is responsible for the non-conformity and a claim is made by the Buyer within the period of claim stipulated above or within quality warranty period under this Contract after the goods are accepted, provided that the goods have been used solely for their proper purpose and in accordance with the operating instructions, and the defect has not been caused by an act or omission of the Buyer or fair wear and tear, the Seller shall settle the claim in the following ways:

若卖方接受其应对不合格情况负责并且买方在上文规定的索赔期限或本合同项下 (货物验收后) 的质保期内提出索赔, 如货物只被买方或最终用户用于正当用途并根据正确的指示操作货物, 且该瑕疵不是由买方造成, 不是因为因买方的疏忽或正常磨损引起的, 卖方应以下述方式解决索赔:

- 13.2.1 replace the non-conforming goods or make up the deficiencies with new ones which conform to the specifications, quality and quantity/weight as stipulated in this Contract; or
以符合本合同规定的规格、质量和数量/重量要求的新产品更换不合格产品或补上短缺情况; 或
- 13.2.2 repair the non-conforming goods at the Seller's expense.
自行承担费用对不合格产品进行修理。

14. **Delay 延迟**

- 14.1 **Buyer's Delay:** The Buyer or End User shall submit the tax exemption application in a timely manner and complete the tax exemption process one month before the shipping date (if applicable). In the event that shipment of the goods is delayed beyond the shipment date for any reason not directly attributable to

the Seller (including without limitation, delay due to the fault of the Buyer or End User, the Buyer's failure or refusal to bear any required taxes and duties, tax exemption process is not completed due to delay caused by the Buyer or End User, the inability of the Buyer or End User to receive the goods because their facility has not been built or is otherwise unfit or unready), save for Force Majeure Events, the Seller may place the goods into appropriate storage specified by the Seller. In such event the Seller's delivery obligations shall be deemed fulfilled and risk of loss and damage shall pass to the Buyer; and any amounts payable to the Seller on shipment shall be payable on presentation of the Seller's invoices; and all expenses incurred by the Seller, including, but not limited to, all expenses of preparation and shipment into storage, handling, storage, inspection, preservation and insurance shall be for the Buyer and the End User's account and shall be payable upon the Seller's presentation of invoices therefor.

买方延迟: 买方或最终用户需及时提交免税申请, 并在发货前一个月完成办理免税手续 (如适用)。若货物装运因不可直接归责于卖方的任何原因而延迟装运 (包括但不限于, 因买方或最终用户一方的过错而延迟、因买方没有或拒绝支付任何所需税款和关税所延迟、免税手续因买方或最终用户延迟提交申请而未及时完成、或买方或最终用户由于其设施尚未建造、不适用或未准备好而无法接收货物), 不可抗力情形除外, 卖方有权将该货物暂时存放在卖方指定的合适的仓库。在这种情况下, 卖方的交货义务应被视为已履行, 损失及损害风险应转移给买方; 买方应在卖方出示发票后支付卖方在交付时应付给卖方的任何款项; 卖方因此而产生的所有费用, 包括但不限于准备以及装运到仓库、处理、仓储检验、保存和保险的所有费用, 应由买方和最终用户承担并在卖方出示发票后支付。

15. **Force Majeure 不可抗力:**

The Seller shall not be held responsible for the delay in shipment or non-delivery of the goods due to an event beyond its reasonable control, including but not limited to fire, flood or act of god; natural disaster; armed conflict; terrorist attack; civil war; civil commotion or riots; war; sanctions or embargoes; any labour or trade disputes, strikes or industrial actions (whether involving employees of either party or of a third party); epidemic or pandemic; equipment or supply difficulties; any rule or action of any public authority; transportation delays; refusal or delay in granting or revocation, cancellation or withdrawal of any necessary licence, approval, consent or permit (a "Force Majeure Event"). The Seller shall advise the Buyer as soon as reasonably practicable of the occurrence mentioned above and as soon as reasonably practicable thereafter, the Seller shall send to the Buyer evidence thereof. If the Force Majeure Event lasts for more than 120 days, the Seller may terminate the Contract whereupon the Buyer shall pay a sum equal to the costs to the Seller of performing the Contract and the Seller's liability shall be limited to repayment of any sums paid in respect of undelivered goods less such costs.

如卖方在履行合同条款时, 因以下不可抗力事件或无法控制的情形而延迟发货或不能交付货物, 卖方均不需对另一方负责或承担责任。不可抗力事件包括但不限于以下事件: 火灾、水灾或天灾、自然灾害、武器冲突、恐怖攻击、内乱、动乱或骚乱、战争、制裁、禁运或封锁、任何劳资纠纷、停工、人工短缺或罢工 (牵涉任何一方或第三方员工)、大规模流行传染病、传染病、供应链中断、政府命令或法律、运输延误、任何所需的许可、批文、同意或批准被拒绝或延迟、撤消、取消或撤回。卖方应在合理可行的范围内尽快将上述事件告知买方, 并在其后合理的范围内尽快将其证据发送给买方。如果不可抗力事件持续了 120 日以上, 则卖方可以终止合同, 且买方应向卖方支付卖方已履行部分合同的费用; 如卖方已收到预付款, 则卖方应在减去相关费用后偿还买方对未交付的货物已付的款项。

16. **Limitation of Liability 责任限制:**

The aggregate liability of the Seller for all breaches or non-performance of its obligations or contemplated by any Contract shall not exceed a sum equal to the total amount paid for the goods under this Contract save that this clause shall not limit or exclude any liability of the seller which cannot be effectively excluded in law.

卖方因为违反或不履行其在本合同项下的任何义务的总计赔偿责任应不超过本合同项下已付货款的总额，但本款规定不限制或排除卖方依法无法排除的任何责任。

17. **Exclusion of Liability 排除责任:**

The Seller shall not be liable for any loss which represents or which is loss of profit, revenue, benefit, anticipated savings or goodwill, loss of use of any asset, loss of data, business interruption, management costs or third party liability, or indirect, special or consequential losses.

卖方不对任何下列损失负责：利润损失、收入、利益、预期节省或商誉、对任何资产的使用损失、数据损失、商业中断、管理成本或第三方责任或任何间接损失或衍生性损失。

18. **Arbitration 仲裁:**

Any dispute arising out of or in connection with this Contract shall be settled through friendly negotiation. Should no settlement be reached through negotiation within 30 days, the case shall be submitted to the Shanghai International Economic and Trade Arbitration Commission ("SHIAC") for arbitration in accordance with the Arbitration Rules of SHIAC in force. Unless otherwise agreed, the official language of arbitration shall be Chinese. The arbitration fee(s) shall be borne by the losing party unless otherwise awarded by SHIAC. In the course of arbitration all parties shall continue to execute their respective obligations under this Contract except those under arbitration. The arbitral award shall be final and binding on all parties.

由本合同产生的或与本合同相关联的任何争议将通过友好协商解决。若无法在 30 天内协商达成一致，则应将争议提交上海国际经济贸易仲裁委员会进行仲裁，并将依据申请仲裁时其现行的仲裁规则和程序进行。除非双方另有约定，仲裁的官方语言应为中文。除非上海国际经济贸易仲裁委员会另有裁决，否则仲裁费用由败诉方负担。在仲裁过程中，各方将继续履行本合同中各自除仲裁之外的其它义务。仲裁裁决为终局裁决，对各方均具有约束力。

19. **Applicable Law 适用法律:**

This Contract is governed by the laws of the People's Republic of China.
本合同适用中华人民共和国法律。

20. **Taxes, Tariffs and Duties 税金和关税:**

20.1 All taxes arising outside of China in connection with the execution of this Contract shall be borne by the Seller.

在中国境外发生的、与本合同的执行相关的所有税金均由卖方承担。

20.2 All taxes in connection with, and in the execution of this Contract to be levied by the Government of the P.R.C. on the Buyer in accordance with the tax laws in effect shall be borne by the Buyer. The Seller may choose to ship the goods in the event that the Buyer fails or refuses to bear any required taxes or duties.

在本合同执行过程中，中华人民共和国政府根据现行税法的规定对买方征收与本合同相关的所有税金均由买方承担。如果买方没有或拒绝支付任何所需税款和关税所延迟或受影响，卖方有权选择是否发货。

- 20.3 If any tariffs are imposed on the goods by the Government of the P.R.C, central bank or any local authorities due to any international trade disputes, the Buyer shall be responsible for such tariffs. The Buyer shall pay the Seller for such additional amount of tariffs paid by the Seller immediately against presentation of an invoice by the Seller.

若发生任何国际贸易纠纷，则买方应负责由中华人民共和国政府、中央银行或者任何当地部门针对货物征收的任何额外关税费用。在卖方出示了发票之后，买方应立即向卖方支付关税费用的相应金额。

21. Intellectual Property Rights 知识产权

Nothing in this Contract confers upon the Buyer any right, title or interest in the Seller's name or any trademarks, copyright, goodwill, patent (registered or unregistered), design (registered or unregistered), know-how (including but not limited to all inventions, discoveries, improvements and processes (whether patentable or non-patentable), copyright works (including without limitation computer programs), designs (whether or not registered or registrable and all other technical information of whatever nature) or other similar or analogous property or rights from time to time of the Seller or any third party. The Buyer shall not register any trademark, trade name, corporate name, logo, copyrights or design of the Seller or anything confusingly similar thereto anywhere in the world.

无其他授权。本协议中包含的任何规定均未将卖方名称中包含的任何权利、权属或利益赋予买方，亦未将卖方或任何第三方不定期获得的商标、版权、商誉、专利（已注册或未注册）、设计（已注册或未注册）、技术诀窍（包括但不限于所有发明，发现，改进和过程（无论是可专利的还是非专利的），版权作品（包括但不限于计算机程序），外观设计（无论是否已注册或可注册）以及所有其他性质的技术信息或者其他类似或相仿知识产权中包含的任何权利、权属或利益赋予买方。买方不得在世界范围内的任何地区对卖方的商标、商业名称、企业名称、徽标、版权或设计进行注册，也不得注册与上述内容相混淆的任何其他类似内容。

22. Export controls and compliance with law 出口管制与法律遵守

- 22.1 The Seller shall comply with applicable laws relating to the goods, their use and disposal. The Buyer shall obtain in good time any applicable licences, permits and approvals in its control relating to import and to the installation and/or operation of the goods. The Seller shall not be responsible for any liability in relation to delay in obtaining or failure to obtain such licences, permits or approvals. The Buyer shall strictly comply with all applicable export laws, controls and regulations and if requested by the Seller shall provide the Seller with an End User undertaking as soon as practically possible and in any event no later than seven (7) days of issue of the Buyer's purchase order. The Buyer acknowledges that export of the goods, any spare parts and components, and technical information, and the performance of the Seller's obligations in the Contract, are contingent upon the export controls of the UK, the US and other applicable jurisdictions dependant on their origin. The Seller shall not be liable to the Buyer in the event that the requisite governmental authorisations, permits, licences, consents cannot be obtained, or they are revoked, delayed, withdrawn, terminated or cancelled for whatever reason.

卖方应遵守与货物，其使用和处置有关的适用法律。买方应及时办理与进口以及货物的安装和/或操作相关的任何适用的许可证和批准。卖方不承担因买方延迟办理或未能获取此类许可证或

批准的任何有关责任。买方应严格遵守所有适用的出口法律、控制和法规。若卖方要求, 买方务必尽快或最迟在签署本合同后 7 天内给卖方提供 End User Undertaking (EUU)。买方认同任何卖方出口的货物, 包括部件、技术信息或零备件等将受有关出口国(英国、美国或其他适用司法管辖区)的出口条规管制。卖方不对无法获得必要的政府授权, 或由于任何原因有关政府授权被中途撤销、延迟或取消的情况承担责任。

- 22.2 The Buyer represents that it is not a Restricted Party, which shall be deemed to include any person or entity: (1) located in or a national of Cuba, Iran, Libya, North Korea, Sudan, Syria, or any other countries that may, from time to time, become subject to US, UK, EU or UN export controls for anti-terrorism reasons or with which US, UK or EU persons are generally prohibited from engaging in financial transactions; (2) on the US Department of Commerce Denied Person's List, Entity List, or Unverified List; US Department of the Treasury list of Specially Designated Nationals and Blocked Persons; or US Department of State List of Debarred Parties; (3) engaged in activities involving nuclear materials or weapons, missile or rocket technologies, or proliferation of chemical or biological weapons; or (4) affiliated with or a part of any non-US military organisation.

买方声明其不是以下所描述的受限制方, 受限制方应包括以下任何个人或实体: (1) 位于古巴、伊朗、利比亚、朝鲜、苏丹、叙利亚或任何其他可能出于反恐原因而不时被禁止与美国、英国或欧盟人员进行金融交易, 因此会不时受到美国、英国、欧盟或联合国出口管制的约束; (2) 在美国商务部的拒绝名单、实体名单或未验证名单中; 美国财政部特别指定的国民和被禁止人员名单; 或美国国务院禁止的政党名单; 或 (3) 从事涉及核材料, 武器, 导弹, 火箭技术或者化学武器或生物武器扩散的活动; 或 (4) 与任何非美国军事组织有隶属关系或是其一部分。

- 22.3 The Buyer shall not export, re-export, divert, transfer or disclose, directly or indirectly, any goods or related technical data, materials or documents or any product thereof to any Restricted Party or to any country (or any national or resident thereof) which the US or UK Government determines from time to time is a country (or end-user) to which such export, re-export, diversion, transfer or disclosure is restricted, without obtaining the prior written authorisation of the Seller and the applicable Government agency.

在没有提前得到卖方以及有关政府机构的书面同意下, 买方不得直接或间接出口、再出口、转移或披露任何关于此合同货物或其相关技术数据、材料或文件或任何有关产品给第三方或任何被英国或美国政府列为受限制的国家(或其国民或居民)。

23. Confidentiality 保密规定

No party hereto shall disclose or divulge to any third party any proprietary technical information, data, know-how or other information of a confidential nature (hereinafter referred to as the "Confidential Information") which is disclosed to it by the other party hereto under or in connection with this Contract, except that the receiving party may disclose the Confidential Information with the prior written consent of the disclosing party, or the receiving party makes such disclosure only to the necessary extent to perform this Contract.

本合同的任何一方均不得向第三方披露或者泄露由本合同其中一方向另一方披露的任何专属技术信息、数据、技术诀窍或者所有其他机密性质的信息、本合同项下或者与本合同有关的事项

(以下简称“保密信息”), 除非接收方仅在履行本合同的必要范围内进行披露, 或接收方已获得透露方出具的书面同意, 接收方可透露保密信息。

24. General Terms 一般条款

- 24.1 All appendices attached hereto shall constitute an integral part of this Contract.
本合同的所有附录构成本合同不可分割的一部分。
- 24.2 This Contract shall come into effect after this Contract is signed by the duly authorized representatives of both parties and sealed.
本合同将于双方合法授权代表签署、加盖公司公章后生效。
- 24.3 Failure or delay by either Party to request execution of any provision of this Contract shall not be construed as a waiver of any right or in any way affect the validity of the other provisions of this Contract at any future time.
若合同任一方未能或延迟要求执行本合同中的任何条款, 其不应解释为该方放弃任何权利, 也不会以任何方式在以后任何时间内影响本合同其他条款的效力。
- 24.4 Without the prior written consent of the other party, this Contract shall not be transferred, nor shall its rights and obligations under this Contract be transferred
未经另一方事先书面许可, 否则不得转让本合同, 也不得转让其在本合同项下的权利和义务。
- 24.5 The relationship between Buyer and Seller hereinafter shall be solely that of Buyer and Seller. No party hereto shall have the right to act as an agent or representative of any other party.
本合同中买卖双方关系应仅为买方和卖方之间的关系。合同中的任一方均没有权利作为另一方的代理或代表。
- 24.6 Any amendment or alteration to this Contract shall be effective only upon signing of an instrument in writing by the duly authorized representatives of the parties hereto.
本合同的任何修订与更改仅在合同双方合法授权的代表签署了书面文件后才生效。
- 24.7 Other matters not mentioned herein shall be settled by friendly consultations of two parties.
本合同未尽事宜应由双方通过相互协商讨论确定。
- 24.8 Provisions in this Contract shall be independent from each other. Any provision that is ineffective, invalid or revoked by courts shall not affect the legality and validity of the remaining provisions.
本合同中各条款的效力相互独立, 任一条款不生效、无效或被法院撤销并不影响其他条款的效力。
- 24.9 Headings to clauses are inserted for the purposes of convenience only and shall not affect the scope or construction of any clause or provision.
本合同的标题仅是为了方便而使用, 不影响任何条款和规定的范围和解释。

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24.10 This Contract is made in both Chinese and English in two (2) originals respectively, one (1) for Seller and the other one (1) for Buyer. It has the same legal effect. In case of any inconsistency between the English and Chinese descriptions, the English version shall prevail.
本合同用中英文对照写成，为正本两（2）份，卖方一份，买方一份，具有相同法律效力。当中英文描述内容不一致时，以英文版本为准。

For and on behalf of
NEW BUSINESS INTERNATIONAL TRADING CO., LIMITED
The Buyer 买方: New Business International Trading Co., Ltd.
新商務國際貿易有限公司

Signature:
Name:
Position:
Date:


Authorized Signature(s)

The Seller 卖方: Oxford Instruments Asylum Research, Inc.

Signature:
Name:
Position:
Date:

DocuSigned by:

Mario Viani
9BAE48D020054FA...

Oxford Instruments Asylum Research, Inc.
Viani
7416 Hollister Avenue
Santa Barbara, CA 93117 USA

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Appendixes to be included:

序号	型号	产品描述	数量
1	MFP-3D-ORIGIN+	原子力显微镜主机	1
2	PFM-AC	高压压电力显微镜模块	1
3	PHEAT-PEEK	材料高温加热器	1
4	CTRL-HTR	环境控制器	1
	CH-ORCA-STD	导电测试模块	1

Oxford Instruments Asylum Research, Inc.
7416 Hollister Avenue
Santa Barbara, CA 93117 USA

, Inc.
e
ISA

LIMITED

signature(s)

7.8.3 案例三

DocuSign Envelope ID: 916AE9E5-9853-48A0-AB1B-9B7F8D49518B

合同 CONTRACT

Contract No: DY-2023000026

The Buyer 买方: WEST OAK LIMITED 西部橡树有限公司
Address 地址: Room 101A, 1/F., Genplas Industrial Building, 56 Hoi Yuen Road, Kwun Tong, Kowloon, Hong Kong 香港九龍觀塘開源道 56 號大眾工業大廈 1 字樓 101A 室
Contact Person 联系人: 李紫冰
Email address 电子邮件: westoak@163.com
Tel 电话: 00852-30623002 / 13435130846

The Seller 卖方: Oxford Instruments Asylum Research, Inc.
Address 地址: 7416 Hollister Avenue, Santa Barbara, California 93117, USA
Contact Person 联系人: Mia Huo 霍瑞美
Email address 电子邮件: Mia.huo@oxinst.com
Tel 电话: +86 16621022707



For the benefit of End-user 最终用户: Harbin Normal University 哈尔滨师范大学
Address 地址: No. 1, Shida Road, Limin Economic Development Zone, Harbin City, Heilongjiang Province 黑龙江省哈尔滨市利民经济开发区师大路 1 号, 150000
Contact Person 联系人: 高峰
Email address 电子邮件: 783418129@qq.com
Tel 电话: 15776611947

Consignee 收货人: Harbin Juhong Technology Development Co., Ltd 哈尔滨巨鸿科技开发有限公司
Address: No. 118 Xidazhi Street, Nangang District, Harbin Heilongjiang PRC, 150000
地址: 黑龙江省哈尔滨市南岗区西大直街 118 号, 150000
USCI: 91230103MA7C32BJ8T
联系人: 王承铭
Tel: 0451-86402896

For
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1. This Contract is made by and between the Buyer and the Seller, whereas the Buyer agrees to buy and the Seller agrees to sell the under-mentioned goods according to the following terms and conditions: 本合同由买方及卖方共同订立, 根据本合同规定的条款, 买方同意购买, 卖方同意出售下述货物:

Goods and Specifications 货名与规格	Quantity 数量	Unit Price 单价 (USD)	Total Amount 总价 (USD)
型号: MFP-3D Origin+ 英文品名: Atomic Force Microscope Brand/品牌: Oxford Instruments	1 set	207,000	207,000
Total Amount: CIP (Harbin Airport, China) Incoterms 2020 USD 207,000(Say USD Two hundred and seven thousand only) 总价: CIP (哈尔滨机场) Incoterms 2020 价(共计贰拾万零柒仟美元整)			

2. **Country of Origin and Manufacturer 产地及制造厂商:**

USA/ Oxford Instruments Asylum Research, Inc.
美国 / 牛津仪器 Asylum Research 公司

3. **Packing 包装:**

By new strong wooden case(s) or carton(s) suitable for long distance transportation, multiple transportation and loading. Necessary measures shall be taken to protect the goods from moisture, rain, rust, corrosion, shock and damages according to their different shapes and special features so as to be able to withstand numerous handling, loading and unloading as well as long distance transportation, to ensure the goods' safe arrival at the worksite without any damage or corrosion.

包装须用坚固的新木箱或纸箱, 适合长途运输和多次搬运、装卸, 并根据货物的形状和特点采取防潮、防雨、防锈、防震、防腐蚀和防其它损害等必要的防护措施, 能承受多种处理, 装卸, 以及长途运输, 以保证货物安全无损地运抵工作现场。

4. **Shipping Mark 唛头:**

On the surface of each package, the package number, measurements, gross weight, net weight, the lifting positions, such cautions as "DO NOT STACK UPSIDE DOWN", "HANDLE WITH CARE", "KEEP AWAY FROM MOISTURE" and the following shipping mark shall be stenciled legibly by the Seller in fadeless paint:

卖方应在每件包装上用不褪色油墨清楚地印上包装编号、尺码、毛重、净重、吊装位置, "不可倒反叠起", "小心处理", "防潮" 等字样, 并刷有下列唛头:

A. Contract No. 合同号码: DY-2023000026

B. Shipping mark 唛头:

DY-2023000026
HARBIN AIRPORT

C. Destination 口岸: Harbin Airport, China

D. Consignee 收货人: Harbin Juhong Technology Development Co., Ltd / 哈尔滨巨鸿科技开发有限公司

5. **Shipment Date 发货时间:**

Subject to clauses 15 and 22 and, in particular, any delays attributable to the current COVID-19 pandemic, the estimated shipping date shall be within 6 months from execution of the Contract by both parties. Partial shipment is not allowed.

If there is a delay regarding the End User's facility, the Buyer shall inform the Seller at least 2 months in advance of the Shipment Date to allow the Seller to adjust the Shipment Date. Otherwise the Seller shall have the right to put the goods in storage and the relevant costs shall be borne by the Buyer.

除了第15条款的不可抗力情形和第22条款（特别的，由当前 COVID-19 大流行引起的任何延误）外，货物的预计装运期为双方签订合同后6个月内。不允许分批装运。

若最终用户的场地准备进度有延迟，买方务必在发货日期前至少两个月提前通知卖方调整发货时间，否则卖方有权按照买方延迟条款要求买方支付货物仓储费以及相关费用。

6. **Port of Shipment 装运口岸:**

Main Airport in USA. The goods shall be shipped by air in accordance with the Incoterms set out in clause 1. 美国主要机场。货物按第1条款中的 Incoterms 空运。

7. **Port of Destination 到货口岸:** 哈尔滨机场，中国（Harbin Airport, China）

8. **Insurance 保险:**

To be covered by the Seller, issued by the insurance company, for 110% of the total value of the goods shipped against all risks and war risks. If the goods are damaged in the period of shipment, the Buyer will claim against the insurance company.

发货后由卖方按运货物总值的110%，投保货到目的地的一切险和战争险。如果货物在装运期间受损，买方将向保险公司索赔。

9. **Terms of Payment 付款条件:**

9.1 The Buyer shall, one month before the Shipment Date, pay 100% of the contract value to the Seller by T/T.

买方应在发货日期前1个月以电汇方式向卖方支付100%合同总价。

9.2 The Buyer shall not delay payment for any reason. Time of payment is of the essence. Without limiting the Seller's remedies if payment is overdue, the Seller may suspend or delay performance (including but not limited to shipment) or refuse to perform its obligations in the Contract until the Seller has received the invoiced payment from the Buyer. If the Seller does not receive 100% of the contract value within 10 working days before the Shipment Date, the Shipment Date will be postponed accordingly. Title to the goods shall pass to the Buyer when the Seller has received full payment for the goods.

买方不得以任何理由延迟付款。付款时间至关重要。在不排除卖方其他法律权利的情况下，如买方延迟付款，卖方有权暂停或延迟履行（包括但不限于发货）或不履行合同中的义务直到卖方收到有关款项为止。如卖方没有在货物的装运期前10个工作日内收到100%合同总价，货物的装运期将相应推迟。卖方收到全款之后，买方才享有货物的所有权。

10. **Documents 文件:**

10.1 Shipping Documents

装运文件

- 10.1.1 Airway bills marked 'Freight Prepaid' notifying the consignee, indicating Contract No., and shipping mark.

航空运单，注明“运费已预付”，通知收货人，显示合同号和唛头。

- 10.1.2 Commercial invoice in three copies, indicating contract and shipping mark.

商业发票一式三份并注名合同及箱单号

- 10.1.3 Packing list in three copies.

装箱单一式三份

- 10.1.4 If the commodities are packed by wooden case, all the wood including those used to fix up the commodities in the container should be printed with the label "IPPC".

如为木质包装，卖方需在所有木材上，包括集装箱内用来固定货物的木板、木条等所有木质上，打印“IPPC”

- 10.1.5 Insurance certificate, showing claim payable at destination in currency of the draft, covering all risks for 110% of the invoice value.

保险证明书，可按投保货币在目的港索赔，注明投保一切险，投保金额为发票价值的 110%。

11. Commissioning and Site Acceptance Test 调试和现场验收：

The Buyer or End User shall ensure that the site has completed the preparation of water, electricity or other necessary facilities required for the installation and/or commissioning of the goods before the date of shipment. The Seller shall be given full co-operation and access at the working site of the Buyer's or End User's factory, for the installation and/or commissioning of the goods free of charge. Site acceptance testing ("SAT") shall be performed after installation and/or commissioning and the Buyer shall accept the goods on completion of the SAT in accordance with the Seller's acceptance protocol and an acceptance certificate shall be issued and signed by End User. If installation, commissioning and/or final acceptance is delayed by the Buyer or at the request of the End User for any reason not attributable to the Seller, by more than 90 days from the date of shipment or the original agreed shipment date of the goods, and/or if the goods have been put into use by the Buyer or End User, the goods will be deemed accepted and the warranty period will commence. If the goods have minor defect(s) and the defect(s) does not impede the intended use of the goods by the Buyer or End User, the Buyer or End User shall not withhold acceptance and the Seller shall correct the defect free of charge.

买方或最终用户应确保场地在装运日期前已完成安装和/或调试货物所需的水电气或其他必要设施之准备。卖方在买方或最终用户工厂内的工作现场应获得充分的配合和进出权限，以便卖方免费安装和/或调试货物。现场验收测试（“SAT”）在安装和调试后进行，买方按照卖方的验收标准完成验收视为验收合格，验收合格证书由最终用户签发。如买方延迟或最终用户要求卖方延迟货物的安装、调试和/或最终验收且该延迟原因不归于卖方，则自货物实际装运日或原装运日起 90 天后，和/或若买方或最终用户已将货物投入使用，货物将被视为通过验收且开始计算质保期。如果货物有小瑕疵且该瑕疵不妨碍买方对货物的预期使用，则买方不得拒绝接受验收合格但不影响卖方免费纠正该瑕疵的义务。

12. **Quality Warranty 质量保证:**

The Seller shall guarantee that the goods correspond in all material respects with the quality specifications and performance as stipulated in this Contract. The Seller also warrants satisfactory operation of the goods under normal operation and adequate maintenance for (i) 12 months after acceptance upon the completion of SAT at the working site of the Buyer's or End User's factory; or (ii) 15 months from the date of shipment, whichever is earlier. The warranty period for any goods replaced or repaired pursuant to the initial warranty period shall be the remaining period, if any, of such initial warranty period. The warranty obligations are conditional upon the following requirements (i) the Seller has received full payment for the goods; (ii) the Buyer or End User promptly notifying the Seller of any defect and if required, promptly making the goods available for correction (iii) the goods has been used solely for its proper purpose and in accordance with the operating instructions; and (iv) the defect has not been caused by fire, accident, misuse, neglect, unauthorized alternation, repair or maintenance or the use of sub-standard consumables and has not arisen from fair wear and tear.

卖方保证货物符合本合同的主要规定的质量规格和性能。卖方并保证货物在正常使用和维修的情况下, (i) 自货物在最终用户工厂现场验收之后 12 个月内运转良好; 或 (ii) 提供自发货日起 15 个月质保期, 以较早者为准。在初始质保期内经过更换或修理的任何货物的质保期应为该初始质保期的剩余期限 (如有)。质量保证义务是以买方符合以下条件为前提 (i) 卖方已收到货物的全款。(ii) 买方或最终用户应及时通知卖方任何瑕疵, 如果需要, 买方或最终用户应及时允许卖方对货物作出更正。(iii) 货物只被买方或最终用户用于正当用途并根据正确的指示操作货物。(iv) 该瑕疵不是由火灾、事故、误用、疏忽、未经授权的更改、维修或维护或使用不标准的消耗品引起的, 并且不是因正常磨损引起的。

13. **Inspection and Claims 检查和索赔:**

- 13.1 Upon arrival of the goods at the port of destination the Buyer shall inspect the goods in respect of their quality, specifications and quantity/weight, including an inspection of the condition of the boxes and an inspection of any "tip and tell" sensors or shock watches attached to the outside packaging of the goods. Should the quality, specification, or quantity be found not in conformity with the Contract, except for those claims which the insurance company or the owners of the vessel are liable, the Buyer shall have the right to give written notice with evidence to the Seller of any damage or claim within 30 days of their delivery at the port of destination.

货物到达目的地口岸后, 买方应对货物质量、规格和数量/重量进行检验, 包括检查包装箱的状况以及检查在商品外包装上的任何“多角度倾斜指示器”或震动表。若货物的质量、规格或数量不符合本合同规定, 除应由保险公司或承运人负责的索赔外, 买方有权在货物交付目的地口岸后 30 天内以书面形式并附上相关证据向卖方发出损害赔偿或索赔通知。

- 13.2 Where the Seller accepts that it is responsible for the non-conformity and a claim is made by the Buyer within the period of claim stipulated above or within quality warranty period under this Contract after the goods are accepted, provided that the goods have been used solely for their proper purpose and in accordance with the operating instructions, and the defect has not been caused by an act or omission of the Buyer or fair wear and tear, the Seller shall settle the claim in the following ways:

若卖方接受其应对不合格情况负责并且买方在上文规定的索赔期限或本合同项下 (货物验收后) 的质保期内提出索赔, 如货物只被买方或最终用户用于正当用途并根据正确的指示操作货物,

且该瑕疵不是由买方造成，不是因为因买方的疏忽或正常磨损引起的，卖方应以下述方式解决索赔：

- 13.2.1 replace the non-conforming goods or make up the deficiencies with new ones which conform to the specifications, quality and quantity/weight as stipulated in this Contract; or
以符合本合同规定的规格、质量和数量/重量要求的新产品更换不合格产品或补上短缺情况；或
- 13.2.2 repair the non-conforming goods at the Seller's expense.
自行承担费用对不合格产品进行修理。

14. **Delay 延迟**

- 14.1 **Buyer's Delay:** The Buyer or End User shall submit the tax exemption application in a timely manner and complete the tax exemption process one month before the shipping date (if applicable). In the event that shipment of the goods is delayed beyond the shipment date for any reason not directly attributable to the Seller (including without limitation, delay due to the fault of the Buyer or End User, the Buyer's failure or refusal to bear any required taxes and duties, tax exemption process is not completed due to delay caused by the Buyer or End User, the inability of the Buyer or End User to receive the goods because their facility has not been built or is otherwise unfit or unready), save for Force Majeure Events, the Seller may place the goods into appropriate storage specified by the Seller. In such event the Seller's delivery obligations shall be deemed fulfilled and risk of loss and damage shall pass to the Buyer; and any amounts payable to the Seller on shipment shall be payable on presentation of the Seller's invoices; and all expenses incurred by the Seller, including, but not limited to, all expenses of preparation and shipment into storage, handling, storage, inspection, preservation and insurance shall be for the Buyer and the End User's account and shall be payable upon the Seller's presentation of invoices therefor.

买方延迟： 买方或最终用户需及时提交免税申请，并在发货前一个月完成办理免税手续（如适用）。若货物装运因不可直接归责于卖方的任何原因而延迟装运（包括但不限于，因买方或最终用户一方的过错而延迟、因买方没有或拒绝支付任何所需税款和关税所延迟、免税手续因买方或最终用户延迟提交申请而未及时完成、或买方或最终用户由于其设施尚未建造、不适用或未准备好而无法接收货物），不可抗力情形除外，卖方有权将该货物暂时存放在卖方指定的合适的仓库。在这种情况下，卖方的交货义务应被视为已履行，损失及损害风险应转移给买方；买方应在卖方出示发票后支付卖方在交付时应付给卖方的任何款项；卖方因此而产生的所有费用，包括但不限于准备以及装运到仓库、处理、仓储检验、保存和保险的所有费用，应由买方和最终用户承担并在卖方出示发票后支付。

15. **Force Majeure 不可抗力：**

The Seller shall not be held responsible for the delay in shipment or non-delivery of the goods due to an event beyond its reasonable control, including but not limited to fire, flood or act of god; natural disaster; armed conflict; terrorist attack; civil war; civil commotion or riots; war; sanctions or embargoes; any labour or trade disputes, strikes or industrial actions (whether involving employees of either party or of a third party); epidemic or pandemic; equipment or supply difficulties; any rule or action of any public authority; transportation delays; refusal or delay in granting or revocation, cancellation or withdrawal of any necessary licence, approval, consent or permit (a "Force Majeure Event"). The Seller shall advise the Buyer as soon as reasonably practicable of the occurrence mentioned above and as soon as reasonably practicable thereafter, the Seller shall send to the Buyer evidence thereof. If the Force Majeure Event lasts for more than 120 days, the Seller may terminate the Contract whereupon the Buyer shall pay a sum

equal to the costs to the Seller of performing the Contract and the Seller's liability shall be limited to repayment of any sums paid in respect of undelivered goods less such costs.

如卖方在履行合同条款时，因以下不可抗力事件或无法控制的情形而延迟发货或不能交付货物，卖方均不需对另一方负责或承担责任。不可抗力事件包括但不限于以下事件：火灾、水灾或天灾、自然灾害、武器冲突、恐怖攻击、内乱、动乱或骚乱、战争、制裁、禁运或封锁、任何劳资纠纷、停工、人工短缺或罢工（牵涉任何一方或第三方员工）、大规模流行传染病、传染病、供应链中断、政府命令或法律、运输延误、任何所需的许可、批文、同意或批准被拒绝或延迟、撤消、取消或撤回。卖方应在合理可行的范围内尽快将上述事件告知买方，并在其后合理的范围内尽快将其证据发送给买方。如果不可抗力事件持续了 120 日以上，则卖方可以终止合同，且买方应向卖方支付卖方已履行部分合同的费用；如卖方已收到预付款，则卖方应在减去相关费用后偿还买方对未交付的货物已付的款项。

16. **Limitation of Liability 责任限制:**

The aggregate liability of the Seller for all breaches or non-performance of its obligations or contemplated by any Contract shall not exceed a sum equal to the total amount paid for the goods under this Contract save that this clause shall not limit or exclude any liability of the seller which cannot be effectively excluded in law.

卖方因为违反或不履行其在本合同项下的任何义务的总计赔偿责任应不超过本合同项下已付货款的总额，但本款规定不限制或排除卖方依法无法排除的任何责任。

17. **Exclusion of Liability 排除责任:**

The Seller shall not be liable for any loss which represents or which is loss of profit, revenue, benefit, anticipated savings or goodwill, loss of use of any asset, loss of data, business interruption, management costs or third party liability, or indirect, special or consequential losses.

卖方不对任何下列损失负责：利润损失、收入、利益、预期节省或商誉、对任何资产的使用损失、数据损失、商业中断、管理成本或第三方责任或任何间接损失或衍生性损失。

18. **Arbitration 仲裁:**

Any dispute arising out of or in connection with this Contract shall be settled through friendly negotiation. Should no settlement be reached through negotiation within 30 days, the case shall be submitted to the Hong Kong International Arbitration Centre ("HKIAC") for arbitration in accordance with the Arbitration Rules of HKIAC in force. The number of arbitrators shall be one. The arbitration proceedings shall be conducted in English. The arbitration fee(s) shall be borne by the losing party unless otherwise awarded by HKIAC. In the course of arbitration all parties shall continue to execute their respective obligations under this Contract except those under arbitration. The arbitral award shall be final and binding on all parties.

由本合同产生的或与本合同相关联的任何争议将通过友好协商解决。若无法在 30 天内协商达成一致，则应将争议提交香港国际仲裁中心按照其现行仲裁规则进行仲裁。仲裁员人数为一人。仲裁程序以英文进行。除非香港国际仲裁中心另有裁决，否则仲裁费用由败诉方负担。在仲裁

过程中，各方将继续履行本合同中各自除仲裁之外的其它义务。仲裁裁决为终局裁决，对各方均具有约束力。

19. **Applicable Law 适用法律:**

This Contract is governed by the laws of Hong Kong.
本合同适用香港法律。

20. **Taxes, Tariffs and Duties 税金和关税:**

20.1 All taxes arising outside of China in connection with the execution of this Contract shall be borne by the Seller.
在中国境外发生的、与本合同的执行相关的所有税金均由卖方承担。

20.2 All taxes in connection with, and in the execution of this Contract to be levied by the Government of the P.R.C. on the Buyer in accordance with the tax laws in effect shall be borne by the Buyer. The Seller may choose to ship the goods in the event that the Buyer fails or refuses to bear any required taxes or duties.
在本合同执行过程中，中华人民共和国政府根据现行税法的规定对买方征收与本合同相关的所有税金均由买方承担。如果买方没有或拒绝支付任何所需税款和关税所延迟或受影响，卖方有权选择是否发货。

20.3 If any tariffs are imposed on the goods by the Government of the P.R.C, central bank or any local authorities due to any international trade disputes, the Buyer shall be responsible for such tariffs. The Buyer shall pay the Seller for such additional amount of tariffs paid by the Seller immediately against presentation of an invoice by the Seller.
若发生任何国际贸易纠纷，则买方应负责由中华人民共和国政府、中央银行或者任何当地部门针对货物征收的任何额外关税费用。在卖方出示了发票之后，买方应立即向卖方支付关税费用的相应金额。

21. **Intellectual Property Rights 知识产权**

Nothing in this Contract confers upon the Buyer any right, title or interest in the Seller's name or any trademarks, copyright, goodwill, patent (registered or unregistered), design (registered or unregistered), know-how (including but not limited to all inventions, discoveries, improvements and processes (whether patentable or non-patentable), copyright works (including without limitation computer programs), designs (whether or not registered or registrable and all other technical information of whatever nature) or other similar or analogous property or rights from time to time of the Seller or any third party. The Buyer shall not register any trademark, trade name, corporate name, logo, copyrights or design of the Seller or anything confusingly similar thereto anywhere in the world.

无其他授权。本协议中包含的任何规定均未将卖方名称中包含的任何权利、权属或利益赋予买方，亦未将卖方或任何第三方不定期获得的商标、版权、商誉、专利（已注册或未注册）、设计（已注册或未注册）、技术诀窍（包括但不限于所有发明，发现，改进和过程（无论是可专利的还是非专利的），版权作品（包括但不限于计算机程序），外观设计（无论是否已注册或可注册）以及所有其他性质的技术信息或者其他类似或相仿知识产权中包含的任何权利、权属或利益赋予买方。买方不得在世界范围内的任何地区对卖方的商标、商业名称、企业名称、徽标、版权或设计进行注册，也不得注册易与上述内容相混淆的任何其他类似内容。

22. **Export controls and compliance with law 出口管制与法律遵守**

22.1 The Seller shall comply with applicable laws relating to the goods, their use and disposal. The Buyer shall obtain in good time any applicable licences, permits and approvals in its control relating to import and to

the installation and/or operation of the goods. The Seller shall not be responsible for any liability in relation to delay in obtaining or failure to obtain such licences, permits or approvals. The Buyer shall strictly comply with all applicable export laws, controls and regulations and if requested by the Seller shall provide the Seller with an End User undertaking as soon as practically possible and in any event no later than seven (7) days of issue of the Buyer's purchase order. The Buyer acknowledges that export of the goods, any spare parts and components, and technical information, and the performance of the Seller's obligations in the Contract, are contingent upon the export controls of the UK, the US and other applicable jurisdictions dependant on their origin. The Seller shall not be liable to the Buyer in the event that the requisite governmental authorisations, permits, licences, consents cannot be obtained, or they are revoked, delayed, withdrawn, terminated or cancelled for whatever reason.

卖方应遵守与货物, 其使用和处置有关的适用法律。买方应及时办理与进口以及货物的安装和/或操作相关的任何适用的许可证和批准。卖方不承担因买方延迟办理或未能获取此类许可证或批准的任何有关责任。买方应严格遵守所有适用的出口法律、控制和法规。若卖方要求, 买方务必尽快或最迟在签署本合同后 7 天内给卖方提供 End User Undertaking (EUU)。买方认同任何卖方出口的货物, 包括部件、技术信息或零部件等将受有关出口国(英国、美国或其他适用司法管辖区)的出口条规管制。卖方不对无法获得必要的政府授权, 或由于任何原因有关政府授权被中途撤销、延迟或取消的情况承担责任。

- 22.2 The Buyer represents that it is not a Restricted Party, which shall be deemed to include any person or entity: (1) located in or a national of Cuba, Iran, Libya, North Korea, Sudan, Syria, or any other countries that may, from time to time, become subject to US, UK, EU or UN export controls for anti-terrorism reasons or with which US, UK or EU persons are generally prohibited from engaging in financial transactions; (2) on the US Department of Commerce Denied Person's List, Entity List, or Unverified List; US Department of the Treasury list of Specially Designated Nationals and Blocked Persons; or US Department of State List of Debarred Parties; (3) engaged in activities involving nuclear materials or weapons, missile or rocket technologies, or proliferation of chemical or biological weapons; or (4) affiliated with or a part of any non-US military organisation.

买方声明其不是以下所描述的受限制方, 受限制方应包括以下任何个人或实体: (1) 位于古巴、伊朗、利比亚、朝鲜、苏丹、叙利亚或任何其他可能出于反恐原因而不时被禁止与美国、英国或欧盟人员进行金融交易, 因此会不时受到美国、英国、欧盟或联合国出口管制的约束; (2) 在美国商务部的拒绝名单、实体名单或未验证名单中; 美国财政部特别指定的国民和被禁止人员名单; 或美国国务院禁止的政党名单; 或 (3) 从事涉及核材料, 武器, 导弹, 火箭技术或者化学武器或生物武器扩散的活动; 或 (4) 与任何非美国军事组织有隶属关系或是其一部分。

- 22.3 The Buyer shall not export, re-export, divert, transfer or disclose, directly or indirectly, any goods or related technical data, materials or documents or any product thereof to any Restricted Party or to any country (or any national or resident thereof) which the US or UK Government determines from time to time is a country (or end-user) to which such export, re-export, diversion, transfer or disclosure is restricted, without obtaining the prior written authorisation of the Seller and the applicable Government agency.

在没有提前得到卖方以及有关政府机构的书面同意下, 买方不得直接或间接出口、再出口、转移或披露任何关于此合同货物或其相关技术数据、材料或文件或任何有关产品给第三方或任何被英国或美国政府列为受限制的国家(或其国民或居民)。

23. Confidentiality 保密规定

No party hereto shall disclose or divulge to any third party any proprietary technical information, data, know-how or other information of a confidential nature (hereinafter referred to as the "Confidential Information") which is disclosed to it by the other party hereto under or in connection with this Contract, except that the receiving party may disclose the Confidential Information with the prior written consent of the disclosing party, or the receiving party makes such disclosure only to the necessary extent to perform this Contract.

本合同的任何一方均不得向第三方披露或者泄露由本合同其中一方方向另一方披露的任何专属技术信息、数据、技术诀窍或者所有其他机密性质的信息、本合同项下或者与本合同有关的事项（以下简称为“保密信息”），除非接收方仅在履行本合同的必要范围内进行披露，或接收方已获得透露方出具的书面同意，接收方可透露保密信息。

24. General Terms 一般条款

24.1 All appendices attached hereto shall constitute an integral part of this Contract.

本合同的所有附录构成本合同不可分割的一部分。

24.2 This Contract shall come into effect after this Contract is signed by the duly authorized representatives of both parties and sealed.

本合同将于双方合法授权代表签署、加盖公司公章后生效。

24.3 Failure or delay by either Party to request execution of any provision of this Contract shall not be construed as a waiver of any right or in any way affect the validity of the other provisions of this Contract at any future time.

若合同任一方未能或延迟要求执行本合同中的任何条款，其不应解释为该方放弃任何权利，也不会以任何方式在以后任何时间内影响本合同其他条款的效力。

24.4 Without the prior written consent of the other party, this Contract shall not be transferred, nor shall its rights and obligations under this Contract be transferred

未经另一方事先书面许可，否则不得转让本合同，也不得转让其在本合同项下的权利和义务。

24.5 The relationship between Buyer and Seller hereinafter shall be solely that of Buyer and Seller. No party hereto shall have the right to act as an agent or representative of any other party.

本合同中买卖双方的关系应仅为买方和卖方之间的关系。合同中的任一方均没有权利作为另一方的代理或代表。

24.6 Any amendment or alteration to this Contract shall be effective only upon signing of an instrument in writing by the duly authorized representatives of the parties hereto.

本合同的任何修订与更改仅在合同双方合法授权的代表签署了书面文件后才生效。

- 24.7 Other matters not mentioned herein shall be settled by friendly consultations of two parties.
本合同未尽事宜应由双方通过相互协商讨论确定。
- 24.8 Provisions in this Contract shall be independent from each other. Any provision that is ineffective, invalid or revoked by courts shall not affect the legality and validity of the remaining provisions.
本合同中各条款的效力相互独立，任一条款不生效、无效或被法院撤销并不影响其他条款的效力。
- 24.9 Headings to clauses are inserted for the purposes of convenience only and shall not affect the scope or construction of any clause or provision.
本合同的标题仅是为了方便而使用，不影响任何条款和规定的范围和解释。
- 24.10 This Contract is made in both Chinese and English in two (2) originals respectively, one (1) for Seller and the other one (1) for Buyer. It has the same legal effect. In case of any inconsistency between the English and Chinese descriptions, the English version shall prevail.
本合同用中英文对照写成，为正本两（2）份，卖方一份，买方一份，具有相同法律效力。当中英文描述内容不一致时，以英文版本为准。

The Buyer 买方: WEST OAK LIMITED
For and on behalf of
Signature: 西部橡樹有限公司
Name: WEST OAK LIMITED
Position: *Hailey*
Date: *Authorized Signature(s)*

The Seller 卖方: Oxford Instruments Asylum Research, Inc.

Signature:
Name:
Position:
Date:

Oxford Instruments Asylum Research, Inc.
Mario Viani
Name: Mario Viani
Position: President
Date: 08-Apr-2017
7416 Hollister Avenue
Santa Barbara, CA 93117 USA

APPENDIX

配置清单 Attachment For Oxford Instruments

序号	规格型号	配置名称	数量
1	MFP-3D-ORIGIN+	MFP-3D Origin+ AFM System with MinusK/ 主机	1 套
2	CH-ORCA-STD	ORCA Cantilever Holder Kit for MFP/ ORCA 导电测试模块	1 套
3	PFM-AC	High Voltage Option for MFP/高压 PFM 模 块	1 套
4	CTRL-HTR	Environmental Controller/环境控制器	1 套
5	PHEAT-PEEK	Cooler Heater for Infinity/加热模块	1 套

以下空白。

Oxford Instruments Asylum Research, Inc.
7416 Hollister Avenue
Santa Barbara, CA 93117 USA

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ature(s)

7.8.4 案例四

DocuSign Envelope ID: 56A07559-9DD9-4659-B6CB-6DAF9CC475C1

合同
CONTRACT

Contract No: 2023XHTM070

The Buyer买方: **Forward Scientific Limited** 飞沃特科技有限公司
Address地址: UNIT 2, 22/F., RICHMOND COMM. BLDG., 109 ARGYLE STREET, MONGKOK, KOWLOON, HONGKONG
Contact Person 联系人: Yongfeng Dai 戴永锋
Email address 电子邮件: 18915734825@163.com
Tel 电话: +86-13616285830

The Seller 卖方: Oxford Instruments Asylum Research, Inc.
Address 地址: 7416 Hollister Ave. Santa Barbara, CA 93117 USA
Contact Person 联系人: Lucky Liu
Email address 电子邮件: Lucky.Liu@oxinst.com
Tel 电话: +1(805) 696-6466

For
Fo
a

For the benefit of End-user 最终用户: Jiangsu University 江苏大学
Address 地址: 301 Xuefu Road, Jingkou District, Zhenjiang City, Jiangsu Province, 212013, China 江苏省镇江市学府路 301 号 邮编: 212013
Contact Person 联系人: Jianming Zhang 张建明
Email address 电子邮件: zhangjm@ujs.edu.cn
Tel 电话: +86-13160201205

Consignee 收货人: Jiangsu Xinhaitian International Trading Corporation Ltd. 江苏新海天国际贸易有限公司
UCSI No.统一社会信用代码: 913200007140853174
Address: FLOOR 7, NO.116 SHIYANG ROAD, QINHUAI DISTRICT, NANJING (JIANGSU LIVES CONSTRUCTION) 江苏省南京市秦淮区石杨路 116 号 7 楼 (江苏省住建大厦)
Contact Person 联系人: Shasha Lian
Tel 电话: +86-25-84499145 +86-15205153042

1. This Contract is made by and between the Buyer and the Seller, whereas the Buyer agrees to buy and the Seller agrees to sell the under-mentioned goods according to the following terms and conditions: 本合同由买方及卖方共同订立, 根据本合同规定的条款, 买方同意购买, 卖方同意出售下述货物:

Goods and Specifications 货名与规格	Quantity 数量	Unit Price 单价 (USD)	Total Amount 总价 (USD)
原子力显微镜	1 set	\$212,000.00	\$212,000.00

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Goods and Specifications 货名与规格	Quantity 数量	Unit Price 单价 (USD)	Total Amount 总价 (USD)
Atomic Force Microscope Model/型号: MFP-3D Origin+ Brand/品牌: Oxford Instruments			
CIP (Nanjing Airport, China)			\$212,000.00
Total Amount: CIP (Nanjing Airport, China) Incoterms 2020 Says Two Hundred and Twelve Thousand US Dollars Only 总价: CIP (中国南京机场) 价(共计 212,000.00 美元整)			

2. **Country of Origin and Manufacturer 产地及制造厂商:**

USA/ Oxford Instruments Asylum Research, Inc.
美国 / 牛津仪器 Asylum Research 公司

3. **Packing 包装:**

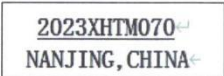
By new strong wooden case(s) or carton(s) suitable for long distance transportation, multiple transportation and loading. Necessary measures shall be taken to protect the goods from moisture, rain, rust, corrosion, shock and damages according to their different shapes and special features so as to be able to withstand numerous handling, loading and unloading as well as long distance transportation, to ensure the goods' safe arrival at the worksite without any damage or corrosion.
包装须用坚固的新木箱或纸箱, 适合长途运输和多次搬运、装卸, 并根据货物的形状和特点采取防潮、防雨、防锈、防震、防腐蚀和防其它损害等必要的防护措施, 能承受多种处理, 装卸, 以及长途运输, 以保证货物安全无损地运抵工作现场。

4. **Shipping Mark 唛头:**

On the surface of each package, the package number, measurements, gross weight, net weight, the lifting positions, such cautions as "DO NOT STACK UPSIDE DOWN", "HANDLE WITH CARE", "KEEP AWAY FROM MOISTURE" and the following shipping mark shall be stenciled legibly by the Seller in fadeless paint:
卖方应在每件包装上用不褪色油墨清楚地印上包装编号、尺码、毛重、净重、吊装位置, "不可倒反叠起", "小心处理", "防潮" 等字样, 并刷有下列唛头:

A. Contract No. 合同号码: 2023XHTM070

B. Shipping mark 唛头:



C. Destination 口岸: NANJING AIRPORT, CHINA 中国南京机场

D. Consignee 收货人: Jiangsu Xinhaitian International Trading Corporation Ltd.
江苏新海天国际贸易有限公司

5. **Shipment Date 发货时间:**

Subject to clauses 15 and 22 and, in particular, any delays attributable to the current COVID-19 pandemic, the estimated shipping date shall be within 5 months from execution of the Contract by both parties. Partial shipment is not allowed.

If there is a delay regarding the End User's facility, the Buyer shall inform the Seller at least 2 months in advance of the Shipment Date to allow the Seller to adjust the Shipment Date. Otherwise the Seller shall have the right to put the goods in storage and the relevant costs shall be borne by the Buyer.

除了第 15 条款的不可抗力情形和第 22 条款（特别的，由当前 COVID-19 大流行引起的任何延误）外，货物的预计装运期为双方签订合同后 5 个月内。不允许分批装运。

若最终用户的场地准备进度有延迟，买方务必在发货日期前至少两个月提前通知卖方调整发货时间，否则卖方有权按照买方延迟条款要求买方支付货物仓储费以及相关费用。

6. **Port of Shipment 装运口岸:**

Main Airport in USA. The goods shall be shipped by air in accordance with the Incoterms set out in clause 1.

美国主要机场。货物按第 1 条款中的 Incoterms 空运。

7. **Port of Destination 到货口岸:**

Nanjing Airport, China 中国南京机场

8. **Insurance 保险:**

To be covered by the Seller, issued by the insurance company, for 110% of the total value of the goods shipped against all risks and war risks. If the goods are damaged in the period of shipment, the Buyer will claim against the insurance company.

发货后由卖方按运货物总值的 110%，投保货到目的地的一切险和战争险。如果货物在装运期间受损，买方将向保险公司索赔。

9. **Terms of Payment 付款条件:**

9.1 The Buyer shall, one month before the Shipment Date, pay 100% of the contract value to the Seller by T/T.

买方应在发货日期前 1 个月以电汇方式向卖方支付 100% 合同总价。

9.2 The Buyer shall not delay payment for any reason. Time of payment is of the essence. Without limiting the Seller's remedies if payment is overdue, the Seller may suspend or delay performance (including but not limited to shipment) or refuse to perform its obligations in the Contract until the Seller has received the invoiced payment from the Buyer. If the Seller does not receive 100% of the contract value within 10 working days before the Shipment Date, the Shipment Date will be postponed accordingly. Title to the goods shall pass to the Buyer when the Seller has received full payment for the goods.

买方不得以任何理由延迟付款。付款时间至关重要。在不排除卖方其他法律权利的情况下，如买方延迟付款，卖方有权暂停或延迟履行（包括但不限于发货）或不履行合同中的义务直到卖方收到有关款项为止。如卖方没有在货物的装运期前 10 个工作日内收到 100% 合同总价，货物的装运期将相应推迟。卖方收到全款之后，买方才享有货物的所有权

10. **Documents 文件:**

10.1 Shipping Documents

装运文件

10.1.1 Airway bills marked 'Freight Prepaid' notifying the consignee, indicating Contract No., and shipping mark.

航空运单, 注明“运费已预付”, 通知收货人, 显示合同号和唛头。

10.1.2 Commercial invoice in three copies, indicating contract and shipping mark.

商业发票一式三份并注名合同及箱单号

10.1.3 Packing list in three copies.

装箱单一式三份

10.1.4 If the commodities are packed by wooden case, all the wood including those used to fix up the commodities in the container should be printed with the label "IPPC".

如为木质包装, 卖方需在所有木材上, 包括集装箱内用来固定货物的木板、木条等所有木质上, 打印“IPPC”

10.1.5 Insurance certificate, showing claim payable at destination in currency of the draft, covering all risks for 110% of the invoice value.

保险证明书, 可按投保货币在目的港索赔, 注明投保一切险, 投保金额为发票价值的 110%。

11. **Commissioning and Site Acceptance Test 调试和现场验收:**

The Buyer or End User shall ensure that the site has completed the preparation of water, electricity or other necessary facilities required for the installation and/or commissioning of the goods before the date of shipment. The Seller shall be given full co-operation and access at the working site of the Buyer's or End User's factory, for the installation and/or commissioning of the goods free of charge. Site acceptance testing ("SAT") shall be performed after installation and/or commissioning and the Buyer shall accept the goods on completion of the SAT in accordance with the Seller's acceptance protocol and an acceptance certificate shall be issued and signed by End User. If installation, commissioning and/or final acceptance is delayed by the Buyer or at the request of the End User for any reason not attributable to the Seller, by more than 90 days from the date of shipment or the original agreed shipment date of the goods, and/or if the goods have been put into use by the Buyer or End User, the goods will be deemed accepted and the warranty period will commence. If the goods have minor defect(s) and the defect(s) does not impede the intended use of the goods by the Buyer or End User, the Buyer or End User shall not withhold acceptance and the Seller shall correct the defect free of charge.

买方或最终用户应确保场地在装运日期前已完成安装和/或调试货物所需的水电气或其他必要设施之准备。卖方在买方或最终用户工厂内的工作现场应获得充分的配合和进出权限, 以便卖方免费安装和/或调试货物。现场验收测试 (“SAT”) 在安装和调试后进行, 买方按照卖方的验收标准完成验收视为验收合格, 验收合格证书由最终用户签发。如买方延迟或最终用户要求卖方延迟货物的安装、调试和/或最终验收且该延迟原因不归咎于卖方, 则自货物实际装运日或原装运日起 90 天后, 和/或若买方或最终用户已将货物投入使用, 货物将被视为通过验收且开始计算质保期。如果货物有小瑕疵且该瑕疵不妨碍买方对货物的预期使用, 则买方不得拒绝接受验收合格但不影响卖方免费纠正该瑕疵的义务。

12. **Quality Warranty 质量保证:**

The Seller shall guarantee that the goods correspond in all material respects with the quality specifications and performance as stipulated in this Contract. The Seller also warrants satisfactory operation of the goods under normal operation and adequate maintenance for (i) 12 months after acceptance upon the completion of SAT at the working site of the Buyer's or End User's factory; or (ii) 15 months from the date of shipment, whichever is earlier. The warranty period for any goods replaced or repaired pursuant to the initial warranty period shall be the remaining period, if any, of such initial warranty period. The warranty obligations are conditional upon the following requirements (i) the Seller has received full payment for the goods; (ii) the Buyer or End User promptly notifying the Seller of any defect and if required, promptly making the goods available for correction (iii) the goods has been used solely for its proper purpose and in accordance with the operating instructions; and (iv) the defect has not been caused by fire, accident, misuse, neglect, unauthorized alternation, repair or maintenance or the use of sub-standard consumables and has not arisen from fair wear and tear.

卖方保证货物符合本合同的主要规定的质量规格和性能。卖方并保证货物在正常使用和维修的情况下, (i)自货物在最终用户工厂现场验收之后 12 个月内运转良好; 或 (ii) 提供自发货日起 15 个月质保期, 以较早者为准。在初始质保期内经过更换或修理的任何货物的质保期应为此初始质保期的剩余期限 (如有)。质量保证义务是以买方符合以下条件为前提 (i) 卖方已收到货物的全款。(ii) 买方或最终用户应及时通知卖方任何瑕疵, 如果需要, 买方或最终用户应及时允许卖方对货物作出更正。(iii) 货物只被买方或最终用户用于正当用途并根据正确的指示操作货物。(iv) 该瑕疵不是由火灾、事故、误用、疏忽、未经授权的更改、维修或维护或使用不合标准的消耗品引起的, 并且不是因正常磨损引起的。

13. **Inspection and Claims 检查和索赔:**

- 13.1 Upon arrival of the goods at the port of destination the Buyer shall inspect the goods in respect of their quality, specifications and quantity/weight, including an inspection of the condition of the boxes and an inspection of any "tip and tell" sensors or shock watches attached to the outside packaging of the goods. Should the quality, specification, or quantity be found not in conformity with the Contract, except for those claims which the insurance company or the owners of the vessel are liable, the Buyer shall have the right to give written notice with evidence to the Seller of any damage or claim within 30 days of their delivery at the port of destination.

货物到达目的地口岸后, 买方应对货物质量、规格和数量/重量进行检验, 包括检查包装箱的状况以及检查在商品外包装上的任何“多角度倾斜指示器”或震动表。若货物的质量、规格或数量不符合本合同规定, 除应由保险公司或承运人负责的索赔外, 买方有权在货物交付目的地口岸后 30 天内以书面形式并附上相关证据向卖方发出损害赔偿或索赔通知。

- 13.2 Where the Seller accepts that it is responsible for the non-conformity and a claim is made by the Buyer within the period of claim stipulated above or within quality warranty period under this Contract after the goods are accepted, provided that the goods have been used solely for their proper purpose and in accordance with the operating instructions, and the defect has not been caused by an act or omission of the Buyer or fair wear and tear, the Seller shall settle the claim in the following ways:

若卖方接受其应对不合格情况负责并且买方在上文规定的索赔期限或本合同项下 (货物验收后) 的质保期内提出索赔, 如货物只被买方或最终用户用于正当用途并根据正确的指示操作货物,

且该瑕疵不是由买方造成，不是因为因买方的疏忽或正常磨损引起的，卖方应以下述方式解决索赔：

- 13.2.1 replace the non-conforming goods or make up the deficiencies with new ones which conform to the specifications, quality and quantity/weight as stipulated in this Contract; or
以符合本合同规定的规格、质量和数量/重量要求的新产品更换不合格产品或补上短缺情况；或
- 13.2.2 repair the non-conforming goods at the Seller's expense.
自行承担费用对不合格产品进行修理。

14. **Delay 延迟**

- 14.1 **Buyer's Delay:** The Buyer or End User shall submit the tax exemption application in a timely manner and complete the tax exemption process one month before the shipping date (if applicable). In the event that shipment of the goods is delayed beyond the shipment date for any reason not directly attributable to the Seller (including without limitation, delay due to the fault of the Buyer or End User, the Buyer's failure or refusal to bear any required taxes and duties, tax exemption process is not completed due to delay caused by the Buyer or End User, the inability of the Buyer or End User to receive the goods because their facility has not been built or is otherwise unfit or unready), save for Force Majeure Events, the Seller may place the goods into appropriate storage specified by the Seller. In such event the Seller's delivery obligations shall be deemed fulfilled and risk of loss and damage shall pass to the Buyer; and any amounts payable to the Seller on shipment shall be payable on presentation of the Seller's invoices; and all expenses incurred by the Seller, including, but not limited to, all expenses of preparation and shipment into storage, handling, storage, inspection, preservation and insurance shall be for the Buyer and the End User's account and shall be payable upon the Seller's presentation of invoices therefor.

买方延迟： 买方或最终用户需及时提交免税申请，并在发货前一个月完成办理免税手续（如适用）。若货物装运因不可直接归责于卖方的任何原因而延迟装运（包括但不限于，因买方或最终用户一方的过错而延迟、因买方没有或拒绝支付任何所需税款和关税所延迟、免税手续因买方或最终用户延迟提交申请而未及时完成、或买方或最终用户由于其设施尚未建造、不适用或未准备好而无法接收货物），不可抗力情形除外，卖方有权将该货物暂时存放在卖方指定的合适的仓库。在这种情况下，卖方的交货义务应被视为已履行，损失及损害风险应转移给买方；买方应在卖方出示发票后支付卖方在交付时应付给卖方的任何款项；卖方因此而产生的所有费用，包括但不限于准备以及装运到仓库、处理、仓储检验、保存和保险的所有费用，应由买方和最终用户承担并在卖方出示发票后支付。

15. **Force Majeure 不可抗力：**

The Seller shall not be held responsible for the delay in shipment or non-delivery of the goods due to an event beyond its reasonable control, including but not limited to fire, flood or act of god; natural disaster; armed conflict; terrorist attack; civil war; civil commotion or riots; war; sanctions or embargoes; any labour or trade disputes, strikes or industrial actions (whether involving employees of either party or of a third party); epidemic or pandemic; equipment or supply difficulties; any rule or action of any public authority; transportation delays; refusal or delay in granting or revocation, cancellation or withdrawal of any necessary licence, approval, consent or permit (a "Force Majeure Event"). The Seller shall advise the Buyer as soon as reasonably practicable of the occurrence mentioned above and as soon as reasonably practicable thereafter, the Seller shall send to the Buyer evidence thereof. If the Force Majeure Event lasts for more than 120 days, the Seller may terminate the Contract whereupon the Buyer shall pay a sum

equal to the costs to the Seller of performing the Contract and the Seller's liability shall be limited to repayment of any sums paid in respect of undelivered goods less such costs.

如卖方在履行合同条款时，因以下不可抗力事件或无法控制的情形而延迟发货或不能交付货物，卖方均不需对另一方负责或承担责任。不可抗力事件包括但不限于以下事件：火灾、水灾或天灾、自然灾害、武器冲突、恐怖攻击、内乱、动乱或骚乱、战争、制裁、禁运或封锁、任何劳资纠纷、停工、人工短缺或罢工（牵涉任何一方或第三方员工）、大规模流行传染病、传染病、供应链中断、政府命令或法律、运输延误、任何所需的许可、批文、同意或批准被拒绝或延迟、撤消、取消或撤回。卖方应在合理可行的范围内尽快将上述事件告知买方，并在其后合理的范围内尽快将其证据发送给买方。如果不可抗力事件持续了 120 日以上，则卖方可以终止合同，且买方应向卖方支付卖方已履行部分合同的费用；如卖方已收到预付款，则卖方应在减去相关费用后偿还买方对未交付的货物已付的款项。

16. **Limitation of Liability 责任限制:**

The aggregate liability of the Seller for all breaches or non-performance of its obligations or contemplated by any Contract shall not exceed a sum equal to the total amount paid for the goods under this Contract save that this clause shall not limit or exclude any liability of the seller which cannot be effectively excluded in law.

卖方因为违反或不履行其在本合同项下的任何义务的总计赔偿责任应不超过本合同项下已付货款的总额，但本款规定不限制或排除卖方依法无法排除的任何责任。

17. **Exclusion of Liability 排除责任:**

The Seller shall not be liable for any loss which represents or which is loss of profit, revenue, benefit, anticipated savings or goodwill, loss of use of any asset, loss of data, business interruption, management costs or third party liability, or indirect, special or consequential losses.

卖方不对任何下列损失负责：利润损失、收入、利益、预期节省或商誉、对任何资产的使用损失、数据损失、商业中断、管理成本或第三方责任或任何间接损失或衍生性损失。

18. **Arbitration 仲裁:**

Any dispute arising out of or in connection with this Contract shall be settled through friendly negotiation. Should no settlement be reached through negotiation within 30 days, the case shall be submitted to the Hong Kong International Arbitration Centre ("HKIAC") for arbitration in accordance with the Arbitration Rules of HKIAC in force. The number of arbitrators shall be one. The arbitration proceedings shall be conducted in English. The arbitration fee(s) shall be borne by the losing party unless otherwise awarded by HKIAC. In the course of arbitration all parties shall continue to execute their respective obligations under this Contract except those under arbitration. The arbitral award shall be final and binding on all parties.

由本合同产生的或与本合同相关联的任何争议将通过友好协商解决。若无法在 30 天内协商达成一致，则应将争议提交香港国际仲裁中心按照其现行仲裁规则进行仲裁。仲裁员人数为一人。仲裁程序以英文进行。除非香港国际仲裁中心另有裁决，否则仲裁费用由败诉方负担。在仲裁

过程中，各方将继续履行本合同中各自除仲裁之外的其它义务。仲裁裁决为终局裁决，对各方均具有约束力。

19. **Applicable Law 适用法律:**

This Contract is governed by the laws of Hong Kong.
本合同适用香港法律。

20. **Taxes, Tariffs and Duties 税金和关税:**

20.1 All taxes arising outside of China in connection with the execution of this Contract shall be borne by the Seller.

在中国境外发生的、与本合同的执行相关的所有税金均由卖方承担。

20.2 All taxes in connection with, and in the execution of this Contract to be levied by the Government of the P.R.C. on the Buyer in accordance with the tax laws in effect shall be borne by the Buyer. The Seller may choose to ship the goods in the event that the Buyer fails or refuses to bear any required taxes or duties. 在本合同执行过程中，中华人民共和国政府根据现行税法的规定对买方征收与本合同相关的所有税金均由买方承担。如果买方没有或拒绝支付任何所需税款和关税所延迟或受影响，卖方有权选择是否发货。

20.3 If any tariffs are imposed on the goods by the Government of the P.R.C, central bank or any local authorities due to any international trade disputes, the Buyer shall be responsible for such tariffs. The Buyer shall pay the Seller for such additional amount of tariffs paid by the Seller immediately against presentation of an invoice by the Seller.

若发生任何国际贸易纠纷，则买方应负责由中华人民共和国政府、中央银行或者任何当地部门针对货物征收的任何额外关税费用。在卖方出示了发票之后，买方应立即向卖方支付关税费用的相应金额。

21. **Intellectual Property Rights 知识产权**

Nothing in this Contract confers upon the Buyer any right, title or interest in the Seller's name or any trademarks, copyright, goodwill, patent (registered or unregistered), design (registered or unregistered), know-how (including but not limited to all inventions, discoveries, improvements and processes (whether patentable or non-patentable), copyright works (including without limitation computer programs), designs (whether or not registered or registrable and all other technical information of whatever nature) or other similar or analogous property or rights from time to time of the Seller or any third party. The Buyer shall not register any trademark, trade name, corporate name, logo, copyrights or design of the Seller or anything confusingly similar thereto anywhere in the world.

无其他授权。本协议中包含的任何规定均未将卖方名称中包含的任何权利、权属或利益赋予买方，亦未将卖方或任何第三方不定期获得的商标、版权、商誉、专利（已注册或未注册）、设计（已注册或未注册）、技术诀窍（包括但不限于所有发明，发现，改进和过程（无论是可专利的还是非专利的），版权作品（包括但不限于计算机程序），外观设计（无论是否已注册或可注册）以及所有其他性质的技术信息或者其他类似或相仿知识产权中包含的任何权利、权属或利益赋予买方。买方不得在世界范围内的任何地区对卖方的商标、商业名称、企业名称、徽标、版权或设计进行注册，也不得注册易与上述内容相混淆的任何其他类似内容。

22. **Export controls and compliance with law 出口管制与法律遵守**

22.1 The Seller shall comply with applicable laws relating to the goods, their use and disposal. The Buyer shall obtain in good time any applicable licences, permits and approvals in its control relating to import and to

the installation and/or operation of the goods. The Seller shall not be responsible for any liability in relation to delay in obtaining or failure to obtain such licences, permits or approvals. The Buyer shall strictly comply with all applicable export laws, controls and regulations and if requested by the Seller shall provide the Seller with an End User undertaking as soon as practically possible and in any event no later than seven (7) days of issue of the Buyer's purchase order. The Buyer acknowledges that export of the goods, any spare parts and components, and technical information, and the performance of the Seller's obligations in the Contract, are contingent upon the export controls of the UK, the US and other applicable jurisdictions dependant on their origin. The Seller shall not be liable to the Buyer in the event that the requisite governmental authorisations, permits, licences, consents cannot be obtained, or they are revoked, delayed, withdrawn, terminated or cancelled for whatever reason.

卖方应遵守与货物, 其使用和处置有关的适用法律。买方应及时办理与进口以及货物的安装和/或操作相关的任何适用的许可证和批准。卖方不承担因买方延迟办理或未能获取此类许可证或批准的任何有关责任。买方应严格遵守所有适用的出口法律、控制和法规。若卖方要求, 买方务必尽快或最迟在签署本合同后 7 天内给卖方提供 End User Undertaking (EUU)。买方认同任何卖方出口的货物, 包括部件、技术信息或零部件等将受有关出口国(英国、美国或其他适用司法管辖区)的出口条规管制。卖方不对无法获得必要的政府授权, 或由于任何原因有关政府授权被中途撤销、延迟或取消的情况承担责任。

- 22.2 The Buyer represents that it is not a Restricted Party, which shall be deemed to include any person or entity: (1) located in or a national of Cuba, Iran, Libya, North Korea, Sudan, Syria, or any other countries that may, from time to time, become subject to US, UK, EU or UN export controls for anti-terrorism reasons or with which US, UK or EU persons are generally prohibited from engaging in financial transactions; (2) on the US Department of Commerce Denied Person's List, Entity List, or Unverified List; US Department of the Treasury list of Specially Designated Nationals and Blocked Persons; or US Department of State List of Debarred Parties; (3) engaged in activities involving nuclear materials or weapons, missile or rocket technologies, or proliferation of chemical or biological weapons; or (4) affiliated with or a part of any non-US military organisation.

买方声明其不是以下所描述的受限制方, 受限制方应包括以下任何个人或实体: (1) 位于古巴、伊朗、利比亚、朝鲜、苏丹、叙利亚或任何其他可能出于反恐原因而不时被禁止与美国、英国或欧盟人员进行金融交易, 因此会不时受到美国、英国、欧盟或联合国出口管制的约束; (2) 在美国商务部的拒绝名单、实体名单或未验证名单中; 美国财政部特别指定的国民和被禁止人员名单; 或美国国务院禁止的政党名单; 或(3) 从事涉及核材料, 武器, 导弹, 火箭技术或者化学武器或生物武器扩散的活动; 或(4) 与任何非美国军事组织有隶属关系或是其一部分。

- 22.3 The Buyer shall not export, re-export, divert, transfer or disclose, directly or indirectly, any goods or related technical data, materials or documents or any product thereof to any Restricted Party or to any country (or any national or resident thereof) which the US or UK Government determines from time to time is a country (or end-user) to which such export, re-export, diversion, transfer or disclosure is restricted, without obtaining the prior written authorisation of the Seller and the applicable Government agency.

在没有提前得到卖方以及有关政府机构的书面同意下, 买方不得直接或间接出口、再出口、转移或披露任何关于此合同货物或其相关技术数据、材料或文件或任何有关产品给第三方或任何被英国或美国政府列为受限制的国家(或其国民或居民)。

23. Confidentiality 保密规定

No party hereto shall disclose or divulge to any third party any proprietary technical information, data, know-how or other information of a confidential nature (hereinafter referred to as the "Confidential Information") which is disclosed to it by the other party hereto under or in connection with this Contract, except that the receiving party may disclose the Confidential Information with the prior written consent of the disclosing party, or the receiving party makes such disclosure only to the necessary extent to perform this Contract.

本合同的任何一方均不得向第三方披露或者泄露由本合同其中一方方向另一方披露的任何专属技术信息、数据、技术诀窍或者所有其他机密性质的信息、本合同项下或者与本合同有关的事项（以下简称为“保密信息”），除非接收方仅在履行本合同的必要范围内进行披露，或接收方已获得透露方出具的书面同意，接收方可透露保密信息。

24. General Terms 一般条款

24.1 All appendices attached hereto (including the Quotation) shall constitute an integral part of this Contract.
本合同的所有附录（包括报价单）构成本合同不可分割的一部分。

24.2 This Contract shall come into effect after this Contract is signed by the duly authorized representatives of both parties and sealed.
本合同将于双方合法授权代表签署、加盖公司公章后生效。

24.3 Failure or delay by either Party to request execution of any provision of this Contract shall not be construed as a waiver of any right or in any way affect the validity of the other provisions of this Contract at any future time.
若合同任一方未能或延迟要求执行本合同中的任何条款，其不应解释为该方放弃任何权利，也不会以任何方式在以后任何时间内影响本合同其他条款的效力。

24.4 Without the prior written consent of the other party, this Contract shall not be transferred, nor shall its rights and obligations under this Contract be transferred
未经另一方事先书面许可，否则不得转让本合同，也不得转让其在本合同项下的权利和义务。

24.5 The relationship between Buyer and Seller hereinafter shall be solely that of Buyer and Seller. No party hereto shall have the right to act as an agent or representative of any other party.
本合同中买卖双方的关系应仅为买方和卖方之间的关系。合同中的任一方均没有权利作为另一方的代理或代表。

24.6 Any amendment or alteration to this Contract shall be effective only upon signing of an instrument in writing by the duly authorized representatives of the parties hereto.
本合同的任何修订与更改仅在合同双方合法授权的代表签署了书面文件后才生效。

24.7 Other matters not mentioned herein shall be settled by friendly consultations of two parties.

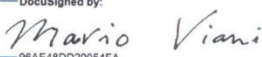
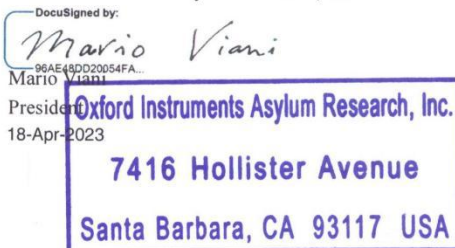
本合同未尽事宜应由双方通过相互协商讨论确定。

- 24.8 Provisions in this Contract shall be independent from each other. Any provision that is ineffective, invalid or revoked by courts shall not affect the legality and validity of the remaining provisions.
本合同中各条款的效力相互独立，任一条款不生效、无效或被法院撤销并不影响其他条款的效力。
- 24.9 Headings to clauses are inserted for the purposes of convenience only and shall not affect the scope or construction of any clause or provision.
本合同的标题仅是为了方便而使用，不影响任何条款和规定的范围和解释。
- 24.10 This Contract is made in both Chinese and English in two (2) originals respectively, one (1) for Seller and the other one (1) for Buyer. It has the same legal effect. In case of any inconsistency between the English and Chinese descriptions, the English version shall prevail.
本合同用中英文对照写成，为正本两（2）份，卖方一份，买方一份，具有相同法律效力。当中英文描述内容不一致时，以英文版本为准。

The Buyer 买方: Forward Scientific Limited

Signature: *For and on behalf of*
Forward Scientific Limited
Name: Yongfeng Dai **弗沃特科技有限公司**
Position: Manager 
Date:
Authorized Signature(s)

The Seller 卖方: Oxford Instruments Asylum Research, Inc.

Signature: 
Name: Mario Viani
Position: President
Date: 18-Apr-2023


DocuSigned by:
96AE48DD20054FA...
Mario Viani
Oxford Instruments Asylum Research, Inc.
7416 Hollister Avenue
Santa Barbara, CA 93117 USA

APPENDIX
配置清单

ATTACHMENT OF CONTRACT 2023XHTM070

序号	货物名称	单位	数量
	MFP-3D Origin+ 原子力显微镜	套	1
包含以下部分			
1	<p>MFP-3D Origin+ 原子力显微镜主机</p> <p>MFP-3D Origin+标准型原子力显微镜：MFP-3D Origin+ 标准型原子力显微镜是一款具有低噪音，高精度的闭环控制多功能原子力显微镜。独特的三轴分离式扫描器，通过单一扫描器实现 120μm 扫描范围到原子级分辨率的 AFM。支持所有主流 AFM/SPM 模式。高度模块化的硬件和软件架构支持用户对系统进行扩展。</p> <p>MFP-3D Origin+主要技术指标：</p> <p>系统噪音：光学反馈噪音小于 15pm (ADev,1-1kHz);</p> <p>Z 方向扫描范围：15μm, X,Y 方向扫描范围：120μm;</p> <p>闭环噪音：X,Y 方向<0.6 nm, Z 方向<0.25 nm;</p> <p>系统高度噪音：<50 pm;</p> <p>光学反馈噪音<15 pm;</p> <p>测试分辨率：Z 方向分辨率≤0.1nm, 实现单原子台阶的测试；</p> <p>测试样品台，最大可观测直径：80mm、厚度 10mm 的样品。</p> <p>系统包括：</p> <p>1. MFP-3D Head 标准的 MFP-3D 头部包括低噪音的悬臂偏转传感器系统，Z 扫描轴，正置光学系统和精确下针的机械装置。悬臂偏转传感器：倒置设计(入射光不垂直)，以便大幅减少样品反光造成的干扰。</p> <p>光源：低相干性的红外线(860nm)超发光二极管，FDA/IEC 激光等级 1M 类(无危险的)</p> <p>2. MFP-3D Scanner(X, Y) 具有闭环控制功能的 X,Y 方向的扫描器。独特的平板式三轴分离的扫描器：X,Y,Z 方向各有一根压电陶瓷管驱动，扫描过程中 X,Y 方向驱动样品进行运动，Z 方向驱动探针进行运动。该扫描方式最大限度避免了管式扫描的耦合误差，提高测试精度。</p> <p>3. MFP-3D 控制台：100%全数字化的 ARC2 控制器：</p> <p>3.1 两个全数字双频锁相放大器，工作带宽 5MHz。</p> <p>3.2 一个输出频率在 10MHz 的双频率频率合成器。频率范围从直流到最大 2MHz（2mHz 步长）。</p> <p>3.3 Cross Point 信号交换芯片：一个 16 × 16 路数字化信号交换芯片。</p> <p>3.4 开放的 BNC 信号接口，用户可通过开放接口提取 或控制系统，可与其他设备信号交换。MFP-3D Origin+专用的计算机系统（Dell T5820） 软件：Igor Pro6 软件和 Asylum Research 操作软件。用户在牛津仪器开发的基于 Igor 的开源代码范围内，几乎可以实现无限制的自定义。</p> <p>4. BASE-SA-TV 上视型光学仪：高分辨的观察探针、红外线超发光二 极管光斑以及样品。提供照明光源。视场可在 720μm 与 240μm 之间转换。</p> <p>标配的工作模式：</p> <p>成像模式：</p> <p>1 轻敲模式 (AC Mode) 带有 Q-control 控制技术，通过调节探针的 Q 值，提高成像质量。</p> <p>2 接触模式 (Contact mode)</p> <p>3 定量相位成像模式 (Phase imaging)</p> <p>4 横向力模式 (Lateral force Microscopy LFM)</p> <p>5 Dual AC 模式(专利技术) 电学测试模式：</p> <p>6 扫描开尔文显微镜 (SKPM)：通过 Lift mode(二次 扫描)表征材料表面的电势分布。</p>	套	1

	<p>7 静电显微镜 (EFM): 通过 Lift mode (二次扫描) 表征材料表面电荷分布。</p> <p>8 动态和静态力曲线测试 利用探针在样品表面进行下压获得样品的力曲线, 可用于表征材料在皮牛量级的力学性能。测量测试范围 1kPa 至 100Gpa</p> <p>9 双频高次谐波成像模式(Dual AC Mode) 独有专利技术, 轻敲模式的升级版, 同时对探针施加两个驱动, 能够同时获得六幅图像, 更敏锐的反应样品的性能, 频率区分不同组分的 (专利技术) 样品。</p> <p>10 *智能探针校准(GetReal): 不需要探针接触基底即可直接标定探针微悬臂弹性常数和灵敏度, 避免传统方法为标定灵敏度需测试前要探针与基底先要接触一次而污染探针。(专利技术) 压电力显微镜模式: 表征材料表面的压电畴分布, 主要用于对压电/铁电样品进行研究, 如 PZT, BFO 以及分子铁电体等。</p> <p>11.DART-PFM (双频共振追踪压电力显微镜)模式(独有专利); 12.Switching Spectroscopy PFM(压电转换谱)模式;</p> <p>13.Lateral PFM (面内 PFM): 通过检测探针横向运动测量样品极化分量;</p> <p>14.Vector PFM (矢量 PFM): 由三方向压电相应分量重构样品真实空间极化取向;</p> <p>15.高速 PFM: PFM 扫描速度可以达到 100Hz 以上, 实时观察压电畴的动态过程。</p> <p>16.单频 PFM 模式</p> <p>17.磁场力显微镜(MFM): 表征样品表面的磁畴分布, 主要用于对磁性样品的研究, 如研究磁盘表面的磁畴分布。</p> <p>18.纳米加工/刻蚀: 精度高于 1nm 的闭环控制纳米加工。简单的图片导入即可实现精准的闭环控制纳米刻蚀。软件图画式路径 操作进行纳米操纵。功能包括: 纳米刻蚀、纳米操纵、阳极氧化刻蚀、压电刻蚀。</p> <p>19.智能扫描模式(Getstartd):自动优化扫描过程中的参数。无需人为干预。</p> <p>20. 智能编程模式: 用户简单的拖动模块来组成宏命令, 以进行自动操作, 无需编程技术。</p>		
2	<p>Minus.K 防震平台</p> <p>高性能防震平台。隔绝外部振动, 保证系统正常工作。该附件是保证 MFP-3D-SA 正常工作的标配。</p>	套	1
3	<p>PFM-AC 高压 PFM 模块</p> <p>智能化高压 PFM 模块: 模块本身能直接输出 (不需要 外接放大器) 高达 220V 的测试电压, 该模块包含:</p> <p>高压放大电路, 高压探针夹持器, 高压样品夹持器。AFM 系统自动识别高压模块, 通过 AFM 操作软件 直接控制高压 PFM 模块。</p> <p>电压范围: 0-220V, 兼容所有的 PFM 模式。AFM 操作软件直接进行测试电压的直流或者交流调制高压模块能够实现: DART-PFM 模式、Switching spectroscopy 测试以及 Vector PFM 模式。</p> <p>警示安全装置: 施加电压时, 红色的警示灯会亮起。最大限度的避免的操作高压过程中的危险。</p>	套	1
4	<p>CTRL-HTR 环境控制器</p> <p>环境控制器: 用于和电化学液池以及温控模块的联用</p>	套	1
5	<p>PHEAT-PEEK 材料高温加热器</p> <p>材料高温加热器: 全密闭环境下的变温, 最大限度的 保证样品加热的均一性, 并且该环境腔上还留有气体 通路能够实时控制样品腔内的气氛环境, 实现特定气氛中的 AFM 测试, 有效的避免了空气中的水汽在加热 过程的影响。变温范围: 室温-300℃, 精度 0.2℃, 需搭配环境控制器(model CLRT-HTR)</p>	套	1
6	<p>Electrochemical CELL 电化学液池</p> <p>电化学液池: 与 MFP-3D 结合能够实现多功能的电化学测试的模块。模块上留有液体进出口以及电极。并可根据客户需求定制样品台及电极, 可进行气相或液相环境下的电化学测试;</p>	套	1
7	<p>ORCA 导电模块</p> <p>该模块能够实现电流成像和 I/V 曲线测试; 标准增益 5×10^8, 电流测试范围: 1pA~20nA。</p>	套	1
8	主机配套台式计算机	套	1