Automated Imaging Solutions for SEM

Automation of routine imaging in Scanning Electron Microscopy (SEM) has gained significant popularity over recent years. Automation provides users with additional levels of flexibility, including unattended and remote operation, as well as repeatability of their measurements. This ability maximizes productivity and sample throughput and significantly lowers the level of expertise required to proficiently operate SEMs. JEOL now offers both simple and advanced automation solutions, giving users the capability to develop protocols that fit their exact imaging needs. When paired with best-in-class AI-driven auto-function technology (auto focus, auto astigmatism correction, auto brightness/contrast), JEOL's automation solutions are fast, reliable, reproducible, and applicable to a wide range of applications.

SIMPLE AUTOMATION WITH SIMPLE SEM

Simple SEM, JEOL's latest advancement in automated imaging solutions, is a fully-integrated interface for creating and implementing imaging routines (Figure 1) without the need for programing experience. Users have the ability to develop custom automated workflows, including acquisition of SEM images and EDS data at a series of magnifications and locations on the sample surface and with varying operating conditions (accelerating voltage, probe current). Simply checking a box enables JEOL's best-in-class auto-functions, with the added flexibility to control how often these functions are utilized within the workflow. Once routines are created, they are automatically saved and can be quickly implemented by simply selecting the area(s) on the sample that the user wants to characterize directly from a live image or ZeroMag view.

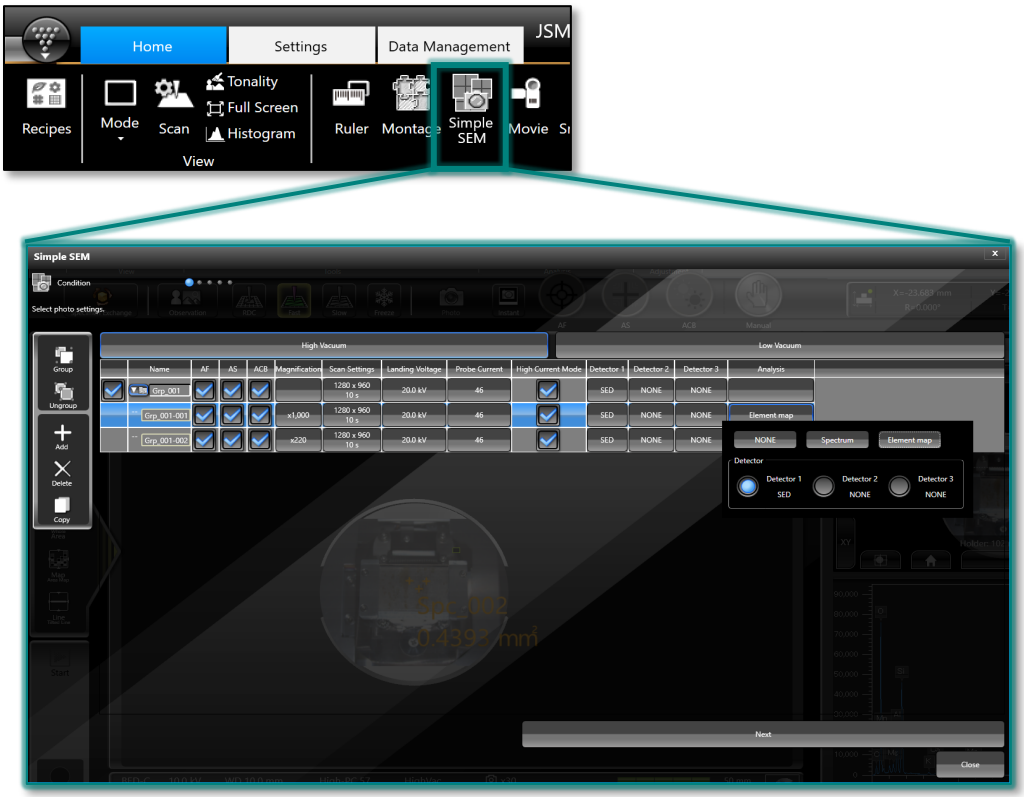

Figure 1. Simple SEM is fully integrated within JEOL's SEM control software, creating an intuitive environment for users to develop automation workflows without any need for programing experience.

Simple SEM is available as part of the standard software package on JEOL's JSM-IT210, JSM-IT510 and JSM-IT710 SEM models.

Compatible Instruments: JSM-IT210, JSM-IT510, JSM-IT710HR. Options: integration with JEOL EDS.

ADVANCED AUTOMATION WITH PYTHON AND C#

For customers with more unique or challenging imaging demands, JEOL continues offers advanced external SEM control using Python or C# (Figure 2). This gives users the flexibility to fully develop and customize imaging protocols and interfaces, optimize acquisition at any operating conditions, automate image processing, and even integrate machine learning (Figure 3).

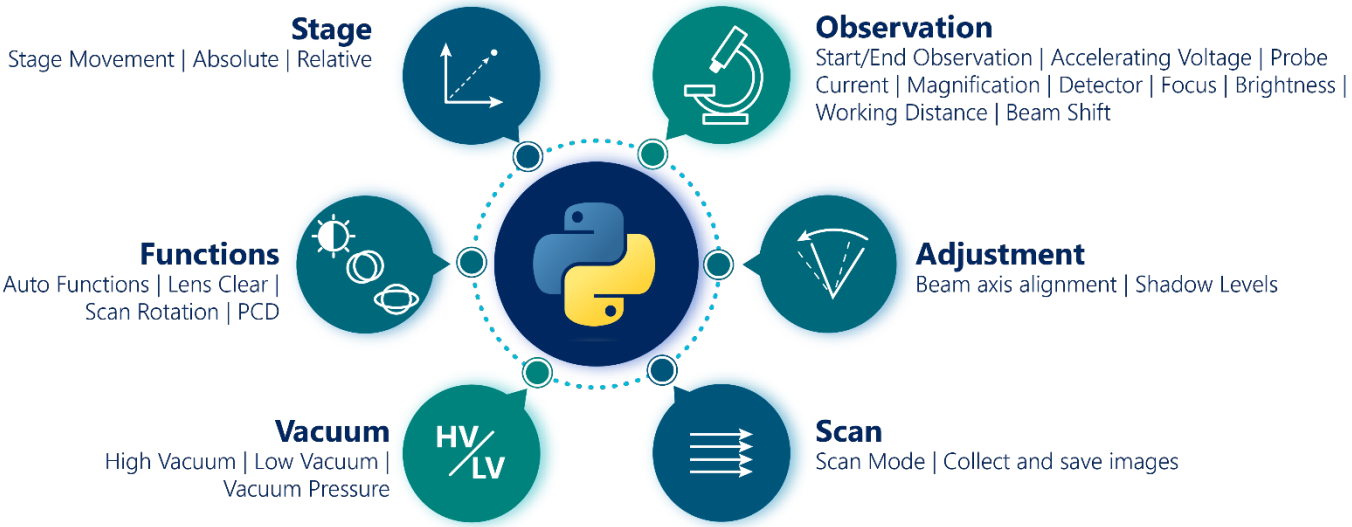

Figure 2. JEOL offers full external microscope control using Python and C#, allowing users to develop custom interfaces and automation programs. A full library of functions is available upon request.

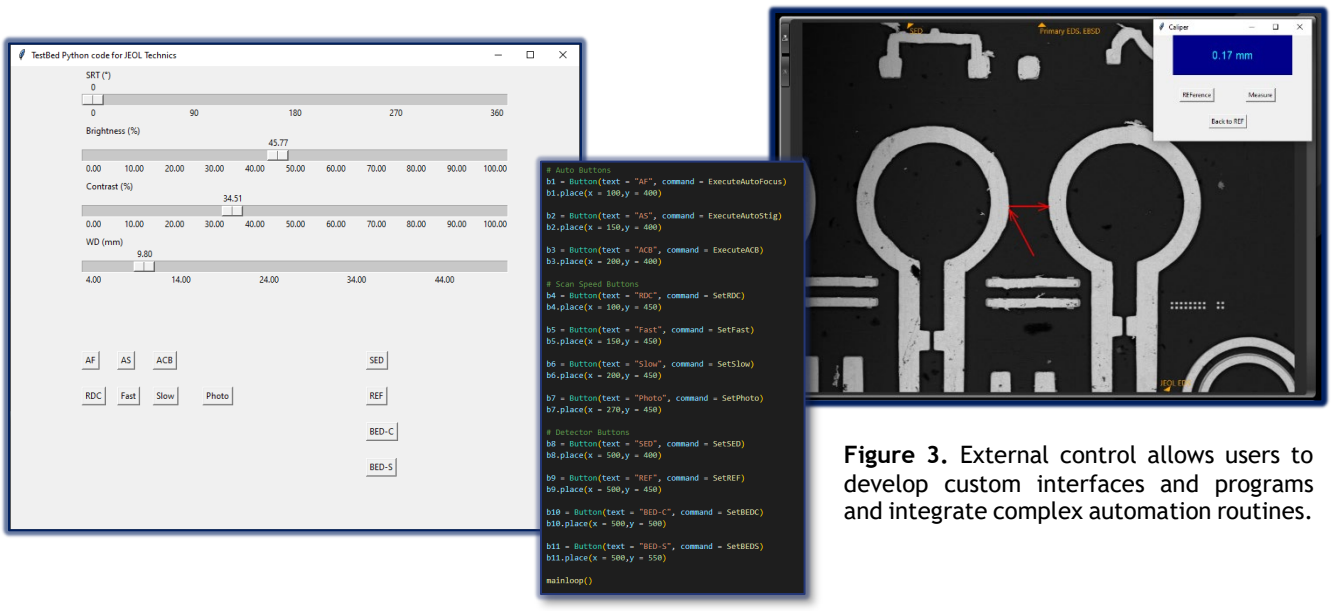

Figure 3. External control allows users to develop custom interfaces and programs and integrate complex automation routines.

External control with Python (3.5.1 or later) and C# available with all current JEOL SEM models. Additional compatible SEM models are available upon request.