

Hardware in synergy: The new PhotonJetMAX-S and UG3

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As crystallographic research continues to evolve, modern diffractometers must keep pace with the growing demands of researchers exploring the frontiers of structural science. A key factor in meeting these challenges lies in the advancement of X-ray sources, which play a vital role in improving diffractometer performance across diverse scientific disciplines. The intensity and brightness of the X-ray beam are often critical, affecting not only the likelihood of experimental success but also enabling higher quality data and extending diffraction limits without lengthening collection times.

To complement these enhanced sources, there is a corresponding need for equally advanced goniometer technology. In this context, we present two significant developments: the PhotonJetMAX-S, a next-generation high-performance X-ray source, and the UG3, our latest goniometer. The PhotonJetMAX-S delivers more than double the diffracted beam intensity of our current microfocus sealed tube source, all while maintaining equivalent operational costs. Meanwhile, the UG3 goniometer offers a 25% increase in scan speed and integrates seamlessly with the Intelligent Goniometer Head 3 (IGH3), our most advanced motorized goniometer head to date. Designed together, the UG3 and IGH3 form the most compact motorized goniometer system available for home laboratories, providing automation advantages with minimal disruption to experimental planning.

This report outlines the performance enhancements and practical benefits of the PhotonJetMAX-S and UG3 systems, supported by measurement data demonstrating their improved efficiency and impact on crystallographic workflows.