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Automated Sample Handling, Data Collection and Structure Solution with ACTOR. A.R. Criswell, A. Dowell, R. Bolotovskiy, J.W. Pflugrath, Rigaku Americas Corp., The Woodlands, TX, USA, 77381.

Systems for automatic sample mounting and diffraction data collection have matured in recent years. Many such automated systems automate the full process from crystalline samples of unknown quality to correctly traced electron density maps. Enabling these methods are reliable hardware for sample handling, tracking methods to identify samples accurately, and software for sample analysis, data collection and processing, and structure solution. Recent developments in the ACTOR system include optional hardware and software for RFID sample tracking and new hardware designs. Additionally, the ACTOR software has expanded to include an automated structure solution pipeline, formerly offered as part of the MIFit software. These software modules expand the capabilities of ACTOR to use 'bind and grind' and SAD methods for structure solution. We will describe these new hardware and software developments and evaluate their efficacy and reliability in identifying satisfactory samples and producing correct protein structures.