Broadening Participation in Structural Biology: New opportunities Enabled by Remote Access

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Researchers around the world have benefited from recent advances in X-ray diffraction data collection. New detector technology, robotic crystal mounting, and remote data collection have all significantly increased the speed and ease of synchrotron data collection. These developments have open up the possibility of collecting data to new groups of novice or casual users who may not have had the resources or experience to participate in more traditional beamtimes. Over the last several years, the Science and Technology Center (STC), Biology with X-ray Free Electron Laser (BioXFEL), in collaboration with researchers from the Stanford Linear Accelerator Center (SLAC), have provided training and education on the essentials of remote data collection to researchers at the University of Puerto Rico (UPR). These educational opportunities, delivered through a series of two-day workshops on the island, provided lectures and hands-on training to undergraduates, graduate students and faculty interested in structural biology. Here we present some of the results from these activities, current progress and challenges faced by researchers at UPR, and discuss best practices for engaging and assisting other researchers at Minority Serving Institutions (MSIs). In creating collaborations with MSI researchers, we can bring new opportunities to traditionally underserved groups, broaden participation in structural biology, and diversify the next generation of scientists.