The Department of Physics at Carnegie Mellon University invites applications for a Department of Energy / Basic Energy Sciences funded post-doctoral position starting immediately. The position is funded by a new three year grant titled, “Probing Fundamental Mechanisms of Plastic Deformation with High Energy X-rays.” The post-doc will join the group of Prof. R. M. Suter in the Department of Physics and will collaborate with that of Prof. A. D. Rollett in the CMU Materials Science and Engineering Department as well as with a diverse set of scientists at Argonne and other National Laboratories.

The aim of the experimental work is to further the development and implementation of synchrotron based structural probes (including, for example, High Energy Diffraction Microscopy, coherent diffractive imaging, and/or x-ray dark field microscopy) that image, non-destructively and in three dimensions, a variety of microstructural quantities such as crystal orientations, strain states, and defect structures and their responses to mechanical and thermal loading. A particular interest is imaging dislocations and their interactions with interfaces (grain boundaries). The measurements are to be used to test computational models of materials responses such as discrete dislocation dynamics codes. Experimental work is performed at Argonne’s Advanced Photon Source as well as other national and international synchrotron radiation facilities.

PhD work in condensed matter physics or materials science (or related engineering disciplines) using synchrotron x-ray diffraction probes is preferred. The work will involve development and application of computational analysis tools with applications to large data sets. Experience with Python and/or C++ is preferred.

Candidates should submit a curriculum vitae, publication list, statement of research interests, and arrange for three letters of recommendation to be sent to Academic Jobs Online: https://academicjobsonline.org/ajo/jobs/11764

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