**Low-energy electron diffraction (LEED) applied to a nanostructured Cu film**

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The growing interest in nanostructures and nanostructured materials has produced a need for methods to characterize their properties. Many of these new materials are grown on surfaces, and therefore it seems logical to apply some of the vast number of surface characterization techniques to learn more about nanostructures. Low-energy electron diffraction (LEED) is the most common technique for surface structure determination, but until recently has been used for relatively simple surface structures, typically involving only a few atoms per surface unit cell. With increased computational capacity, however, it is now feasible to solve structures having much higher level of complexity. In this talk, I will describe a study of a nanostructured Cu film grown on the surface of the Al-Pd-Mn quasicrystal, presenting an aperiodic but well-ordered structure at its surface. Although its surface structure is aperiodic, a LEED analysis shows that its surface is actually a vicinal surface of a periodic structure. The techniques developed for this analysis are applicable to other nanostructured surfaces.