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Open Access Internet Resources for Nano-Materials Physics Education PETER MOECK, Portland State University, BJOERN SEIPEL, GIRISH UPRETI, MORGAN HARVEY, WILL GARRICK, NANOCRYSTALLOGRAPHY GROUP COLLABORATION, ACADEMIC AND RESEARCH COMPUTING COLLABORATION — Because a great deal of nano-material science and engineering relies on crystalline materials, materials physicists have to provide their own specific contributions to the National Nanotechnology Initiative. Here we briefly review two freely accessible internet-based crystallographic databases, the Nano-Crystallography Database (<http://nanocrystallography.research.pdx.edu>) and the Crystallography Open Database (<http://crystallography.net>). Information on over 34,000 full structure determinations are stored in these two databases in the Crystallographic Information File format. The availability of such crystallographic data on the internet in a standardized format allows for all kinds of web-based crystallographic calculations and visualizations. Two examples of which that are dealt with in this paper are: interactive crystal structure visualizations in three dimensions and calculations of lattice-fringe fingerprints for the identification of unknown nanocrystals from their atomic-resolution transmission electron microscopy images.

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