

The Use of Blender and SketchFab to Create and Share Teaching Tools for Crystallography

Michael Aristov¹, John Berry²

¹*Chemistry, UW Madison* ²*University of Wisconsin, Madison*
aristov@wisc.edu

Historically, the process of teaching crystallography relied heavily on advanced mathematics and 2D images to express complicated 3D symmetry operations. Unfortunately, these 2D representations are insufficient for some students to garner a complete understanding of these nuanced transformations. In recent years, effort has been made to build up libraries of 3D resources for the purpose of teaching symmetry and crystallography. To that end, I have created and am maintaining a library of 3D models and animations. These models were made specifically to address common confusions which arose during my time across several graduate level crystallography courses. These tools include but are not limited to 3D depictions of the 32-point groups with symmetry elements, animations showing the common symmetry operations as applied to objects in space, and animations depicting the generation of stereographic projections. The freely available software, Blender, was used to create these resources, and the resulting 3D teaching aids were uploaded to Sketchfab, where they will be freely accessible on any device without requiring students to download additional software. This talk aims to discuss the importance of using 3D models in the classroom, the ability of commonly used crystallography software packages to export 3D files, the process of modifying and animating those files with Blender, and the ease of sharing the product freely and globally through SketchFab.