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Cyber-Tutorials for Undergraduate Crystallographic Education. Gregory M. Ferrence, Elizabeth Tabler, CB 4160, Dept. of Chemistry, Illinois State Univ., Normal, IL, 61790

A decade of rapid desktop computer and crystallographic software advances has led to the emergence of many non-specialists engaging in crystallographic activities far beyond the relatively simplistic utilization of reports generated by professional crystallographers. With increasing numbers of non-expert crystallographic practitioners, a critical need to improve widespread basic crystallographic education exists. Non-specialists need to better appreciate disciplinary limitations and pitfalls as well as the importance of the professional crystallographer. Technology has made it possible to teach practical, "hands-on" crystallography to undergraduates. Materials, particularly worked examples and tutorials, to teach crystallography remain scarce. We are designing and building computer based tutorials for aid in crystallography education, including as components of a distance learning chemical crystallography course designed for non-specialists. Tutorials are geared to help students learn: 1) the process of translating a diffraction data set into a set of atomic coordinates representing the 3-D solid state molecular structure, 2) validation of crystallographic results, and 3) contextual analysis of results through literature and Cambridge Structural Database comparison.



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