

**UNeMed**

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## Digital Topography Imaging System for Determination of Crystalline Structure

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**Technology Field:** Research Tools and Reagents

**Product ID:** 63187.1

**US Patent:** Digital X-ray Camera for Quality Evaluation Three-dimensional Topographic Reconstruction of Single Crystals  
(U.S. Patent Publication No. 20060259245)

### Background

UNMC researchers have developed a digital topography imaging system that allows for quality three dimensional topographic reconstruction of single crystals. The invention utilizes a CCD camera with a very fine pixel size to convert x-rays into an electrical signal, without the use of phosphor. The CCD camera measures the x-ray reflection angles of the x-rays that are passed through the sample to form a raw image, and the raw image is processed by a computer program.

### Benefits

- Cost efficient
- Rapid and quantitative
- Reads out directly to electronic media

### Related Technology

This patent application is a continuation-in-part of U.S. patent application Ser. No. 10/681,874, now abandoned.

### Publications

1. J. J. Lovelace, C. R. Murphy, H. D. Bellamy, K. Brister, R. Pahl and G. E. O. Borgstahl, "Advances in digital topography for characterizing imperfections in protein crystals," *J. Appl. Cryst.* (2005). 38, 512-519.
2. J. J. Lovelace and G. E. O. Borgstahl, "Ripple: a program to collect and analyze digital topographic sequences," *J. Appl. Cryst.* (2006). 39, 466-467.
3. J. J. Lovelace, A. S. Soares, H. D. Bellamy, R. M. Sweet, E. H. Snell and G. E. O. Borgstahl, "First results of digital topography applied to macromolecular crystals," *J. Appl. Cryst.* (2004). 37, 481-485.
4. Lovelace, J. Snell, E. H., Pokross, M., Arvai, A. S., Nielsen, C., Xuong N.-H., Bellamy, H. D. and Borgstahl, G. E. O. "BEAM-ish: a graphical user interface for the physical characterization of macromolecular crystals," *J. Appl. Cryst.* 33, 1187-1188 (2000).

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