
A Brief History of Texture and Anisotropy

Rollett Anthony*¹

¹Carnegie Mellon University – United States

Abstract

A brief history of texture and anisotropy aims to inspire younger researchers to engage in this topic. The field initially focused on the problem of reconstructing three-dimensional orientation distributions from diffraction data which typically provided two-dimensional projections in the form of pole figures following the pioneering work of Bunge and Roe. In recent years, the advent of automated orientation mapping in the scanning electron microscope and 3D mapping via synchrotron x-rays has provided vastly more detailed data on texture and, crucially, has connected texture more closely with microstructure. Alongside this has been the development of simulation tools to predict texture formation and the anisotropic properties of polycrystalline materials. This has mostly been accomplished via a mix of mesoscale models and more detailed methods that include microstructure. The latter are predominantly based on the finite element method complemented by the spectral method. Examples are given of modern developments in this area.

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*Speaker