

New Techniques to Visualize and Interpret Quantitative Data Extracted from Images of Superconductors

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Quantitative characterization of sample microstructure is an essential tool for the understanding of electromechanical and electromagnetic measurements on superconducting materials and powerful open source software [1], [2] is now available that can quickly provide additional insights into the distribution of important features of superconductor micro- and macro-structures. In this presentation, we demonstrate new techniques that we have developed to visualize and interpret data from microscope images with specific regard to the needs of the superconductor community and that we have made available on-line [3]. An important characteristic of this software is the ease of developing new routines to address new challenges in extracting useful quantitative data relevant to superconducting properties and we hope that this presentation will lead to others developing new techniques that can also be shared among the community.

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- [1] C. A. Schneider, W. S. Rasband, and K. W. Eliceiri, “NIH Image to ImageJ: 25 years of image analysis,” *Nat Methods*, vol. 9, no. 7, pp. 671–675 (2012).
- [2] J. Schindelin et al., “Fiji: an open-source platform for biological-image analysis,” *Nature Methods*, vol. 9, no. 7, pp. 676–682 (2012).
- [3] “ImageJ Utilities: Applied Superconductivity Center, NHMFL.” [Online]. Available: http://fs.magnet.fsu.edu/~lee/asc/ImageJUtilities/ASC_ImageJ_Utils.html.