



# Image Analysis in Earth Sciences: Microstructures and Textures of Earth Materials (Lecture Notes in Earth Sciences)

*By Renée Heilbronner, Steve Barrett*

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About the Author

**Professor Renée Heilbronner** has many years of experience in the field of image analysis and has developed several software packages for microstructure analysis for grain size, shape and strain determinations. She has also developed the CIP method for crystallographic texture determinations and orientation imaging based on polarization microscopy and digital image processing. She has contributed to the development of the freeware image analysis software (*Image SXM*, former *NIH Image*), and is a member of a growing group of international image analysis experts who are setting up workshops and building a network for microstructure and texture research involving mathematicians, material scientists and geologists. As an experienced teacher of image analysis at different levels ranging from general introductory courses to specialized texture workshops, she has taught at various universities all over the world.

<http://pages.unibas.ch/earth/micro>

**Dr Steve Barrett** is the author of the internationally renowned image analysis software *Image SXM*. He has been developing the software continuously over the past two decades, from its origins as a spin-off from the freeware *NIH Image*, to the extensions that allow it to handle images from over fifty types of optical and scanning microscopes. A customized version of this software (*PrinCIPia*) based on the CIP method can handle the calculation, display, analysis and manipulation of images representing the crystallographic orientation of grains in rock samples imaged by polarizing microscopes. He has published widely in the field of nanoscience and has also collaborated with medics to create microscopy image analysis software for medical applications (*MIASMA*). He has over twenty years experience teaching to undergraduates and postgraduates. <http://www.liv.ac.uk/~sdb>

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