


EBSD and BKD


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Downloads and Further Links





Downloads

[Download](#) (33.5 MB)  H.-J. Bunge: Texture Analysis in Materials Science - Mathematical Methods. Digital Edition in 2015 of the 1st English Edition by Butterworth Co (Publ.) 1982

[Download](#) (3.5 MB)  J. Hansen, J. Pospiech and K. Lücke: Tables for Texture Analysis of Cubic Crystals. (1978)


Notice: The digital version of "Part A - Review of the Representation of Orientations and Orientation Distributions" and the FORTRAN program listing have been made available for download by the author Prof. Dr. Jan Pospiech (Cracow) in 2016. "Part B - The Tables" are not included.


[Download](#)  H. Determann: Kikuchi-Bänder mit Röntgenstrahlen. (in German with attached English translation) Schriften der Naturforschenden Gesellschaft in Danzig 1938, pp. 5-7


[Download](#)  N. Krieger Lassen: Automated determination of crystal orientations from electron backscattering patterns. PhD Thesis, Technical University of Denmark at Lyngby, 1994


P. Toft: The Radon transform – Theory and implementation. PhD Thesis, Technical University of Denmark at Lyngby, 1996


 Free download from: <http://petertoft.dk/PhD/Download>

[Download](#)  D. Gerth and R.A. Schwarzer: Graphical representation of grain and hillock orientations in annealed Al-1%Si films. Textures and Microstructures **21** (1993) 177-193

[Download](#)  R.A. Schwarzer: Automated crystal lattice orientation mapping using a computer-controlled SEM. Micron **28** (1997) 249-265.

[Download](#)  A.H. Fischer: Ortsaufgelöste Polfigurmessung, Texturkartographie und Mikro-Fluoreszenzanalyse. PhD Thesis, University of Technology Clausthal, 1998

[Download](#)  R.A. Schwarzer: Modern diffraction techniques for texture analysis. in: R.K. Ray et al. (eds.): Proc. Intern. Symp. on Materials for the Third Millenium. IIT Kanpur (India) 1991. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi and Kolkata, 2001 ISBN 81-204-1513-2

[Download](#)  R.A. Schwarzer: A Fast ACOM/EBSD System. Archives of Metallurgy and Materials **53** (2008) 5-10

Clean is a small demo tool for denoising and contrast enhancement of backscatter Kikuchi patterns. Kikuchi bands are accentuated for interactive detection. The demo is not optimized for high speed.

[Download](#) (Depending on the settings of your browser the download by a left click may fail because it is a zipped file. In this case try a right click and save.)

In the EBSD system "[Fast EBSD](#)" images of the microstructure can be constructed by evaluating the intensity distributions in the BKP of sequences during acquisition or off-line. These maps also show the quality of surface finish (topographic



contrast, relief contrast imaging) (see [Poster Kiel 2011](#)).

The phase distribution may also be revealed if differences in density are sufficiently high (Z contrast, material contrast imaging). In this program option the EBSD detector has the same function as a conventional solid state forward and/or backscatter detector.

Further reading

(*first BKD*) : Sh. Nishikawa and S. Kikuchi: Diffraction of cathode rays by calcite. Nature **122** (1928) 726.

Sh. Nishikawa and S. Kikuchi: The diffraction of cathode rays by calcite. Proc. Imp. Acad. Japan (Tokyo) **4** (1928) 475-477

S. Kikuchi: Diffraction of cathode rays by mica, Part 1-4. Proc. Imp. Acad. Japan (Tokyo) **4** (1928) 271 ff.

H. Boersch: About bands in electron diffraction. (*paper in German*) Physikalische Zeitschrift **38** (1937) 1000-1004 and image table XI

Notice: If you don't have access to the early publications on Kikuchi diffraction, you may receive a personal copy on request. Please send a note to mail@ebbsd.info .

I would highly recommend the introductory-level monograph:

Olaf Engler and Valerie Randle: Introduction to Texture Analysis - Macrotecture, Microtexture, and Orientation Mapping. 2nd edition. Taylor & Francis Group / CRC Press, Boca Raton (FL) 2010. ISBN 978-1-4200-6365-3

A.J. Schwartz, M. Kumar, B.L. Adams and D.P. Field (eds.): Electron Backscatter Diffraction in Materials. Science. 2nd edition. Springer Science+Business Media, New York 2009 (ISBN 978-0-387-88135-5) <http://dx.doi.org/10.1007/978-1-4757-3205-4>

A.J. Schwartz, M. Kumar, and B.L. Adams (eds.): Electron Backscatter Diffraction in Materials. Kluwer Academic / Plenum Press, New York 2000 (ISBN 0-306-46487-X) <http://dx.doi.org/10.1007/978-0-387-88136-2>

V. Randle: Microtexture determination and its applications. The Institute of Materials, London 1992 ISBN 0-901716-395 (<http://www.crystaltexture.com>)

L. Spiess, G. Teichert, R. Schwarzer, H. Behnken and C. Genzel: Moderne Röntgenbeugung - Röntgendiffraktometrie für Materialwissenschaftler, Physiker und Chemiker. Chapter 11: Röntgenographische Texturanalyse. pp. 417-480. Chapter 14: Spezielle Verfahren. pp. 527-556. 3rd extended edition. Springer Spektrum, Wiesbaden 2019 (ISBN 978-3-8348-1219-3)

Further Links

www.ebsd.de (EBSD - Eine Einführung)

An introduction to advanced EBSD systems (*in German*).

<http://www.crystaltexture.com> (An introduction to special methods of (local) crystal texture analysis by XRD and TEM)

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