



EBSD and BKD

[Home](#)
[Basics](#)
[TKD](#)
[Radon vs Hough](#)
[FastEBSD](#)
[Evaluation](#)
[Conclusions](#)
[Downloads](#)
[Glossary](#)

List of Publications



#	Articles published in journals	 available in kB
A1	K.H. Gaukler and R. Schwarzer Verbessertes Verfahren zur Bestimmung des mittleren inneren Potentials aus Reflexions-Kikuchi-Diagrammen. Optik 33 (1971) 215-229	424
A2	K.H. Gaukler and R. Schwarzer Elektronen-Emissions-Mikroskopie (Review article). Messtechnik 81 (1973) 307-316	1190
A3	J. Hofmeister and R. Schwarzer Zum Einfluß der kristallographischen Orientierung auf den vektoriellen Photoeffekt. Physics Letters 53A (1975) 283-284	501
A4	G.H. Hartmann, H.P. Niemitz and R.A. Schwarzer Bestimmung des mittleren inneren Potentials von Diamant und von Vanadium-Pentoxid aus Reflexions-Kikuchi- Diagrammen. Optik 44 (1975) 37-43	488
A5	R. Schwarzer Der Einfluß von Loch- und Ringblenden auf die Energieverteilung der Elektronen im Emissions-Elektronenmikroskop. Optik 44 (1975) 61-78	1078
A6	R. Schwarzer Die Verbesserung des Bildkontrastes im Emissions-Elektronenmikroskop durch eine ringförmige Aperturblende. Optik 44 (1975) 121-131	533
A7	M.B. Trullenque, Z.P. Argüello and R.A. Schwarzer Investigations of ionic crystals with the photoemission electron microscope. Revista Microscopia Electrónica 3 (1976) 156-157	252
A7a	R.A. Schwarzer, J.I. Cisneros, M. Tomyjama, Shih-Lin Chang and Z.P. Argüello Study of orientation contrast and information depth in LiF with the photoemission electron microscope (PEEM). Revista de Microscopia Electrónica 5 (1978)	288
A8	W. May, E.A. Farah and R. Schwarzer EMA and PEEM studies of WC-Ti interface reactions. Revista Microscopia Electrónica 3 (1976) 190-191	390
A9	R. Schwarzer and K.H. Gaukler Erzeugung einer Ionen-Mikrosonde mittels Feldionisation und Emissionslinse. Vakuum-Technik 27 (1978) 2-5	81
A10	R. Schwarzer Die Bestimmung von Strukturpotentials aus Kossel-Möllenstedt-Diagrammen an epitaktisch aufgedampften, freitragenden Kupfereinkristallschichten. Optik 54 (1979) 193-199	190
A11	R.A. Schwarzer Emission electron microscopy - A review. Part 1: Basic concepts and applications in physics. Microscopica Acta 84 (1981) 51-86	1961
A12	R.A. Schwarzer Bestimmung von Polfiguren und Texturanalyse mit dem Transmissions-Elektronenmikroskop. Z. Metallkunde 73 (1982) 495-498	507
A13	R.A. Schwarzer On-line measurement of foil thickness from Kossel-Möllenstedt diffraction patterns. Optik 77 (1987) 55-56	179
A14	R.A. Schwarzer and H. Weiland Texture analysis by the measurement of individual grain orientations - Electron microscopical methods	1459

	and application on dual-phase steel. Textures and Microstructures 8&9 (1988) 551-577	
A15	R.A. Schwarzer Measurement of local textures with transmission and scanning electron microscopes. Textures and Microstructures 13 (1990) 15-30	1502
A16	R. Schwarzer Die Kristalltextur in der Mikroelektronik. Teil 1. Elektronenmikroskopische Meßverfahren. Verbindungstechnik in der Elektronik 3 (1991) Heft 1, 16-20 Teil 2. Hügelbildung in dünnen Metallisierungsschichten. Verbindungstechnik in der Elektronik 3 (1991) Heft 2, 56-59	1419
A17	R.A. Schwarzer A review of the analysis of local texture by electron diffraction. Textures and Microstructures 14-18 (1991) 85-90	799
A18	R.A. Schwarzer Scanning X-ray apparatus for texture mapping by energy dispersive diffraction. Textures and Microstructures 14-18 (1991) 241-244	478
A19	R.A. Schwarzer Texture analysis by electron diffraction. Steel Research 62 (1991) 542-547	1614
A20	D. Gerth, D. Katzer and R. Schwarzer Correlation between grain growth and hillock growth in thin thermally annealed Al-1%Si films on silicon substrates. Materials Science Forum 94-96 (1992) 557-562 / Proc. Intern. Conf. on Grain Growth in Polycrystalline Materials, Rome 1991	273
A21	D. Gerth and R.A. Schwarzer The development of grain-specific texture and grain boundary character during grain growth of Al-1%Si films on SiO ₂ /Si substrates. Materials Science Forum 113-115 (1993) 619-624 / Proc. Intern. Conf. on Recrystallization and Related Phenomena (Recrystallization '92), San Sebastian 1992	126
A22	D. Gerth and R.A. Schwarzer The effect of grain-specific texture on hillock growth in Al-1%Si films on SiO ₂ /Si substrates. Materials Science Forum 113-115 (1993) 625-630 / Proc. Intern. Conf. on Recrystallization and Related Phenomena (Recrystallization '92), San Sebastian 1992	246
A23	S. Zaefferer and R.A. Schwarzer Microstructure and local texture of partially recrystallized titanium sheet. Materials Science Forum 113-115 (1993) 721-724 / Proc. Intern. Conf. on Recrystallization and Related Phenomena (Recrystallization '92), San Sebastian 1992	114
A24	R.A. Schwarzer Crystal texture analysis of ceramics by electron microscopy. Ceramika 42 (1993) 59-65 / Polski Biuletyn Ceramiczny 4 (1993)	100
A25	R.A. Schwarzer The determination of local texture by electron diffraction - A tutorial review. Textures and Microstructures 20 (1993) 7-27	3495
A26	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	774
A27	R.A. Schwarzer and D. Gerth The effect of grain orientation on the relaxation of thermomechanical stress in Al-1%Si conductor layers on SiO ₂ /Si substrates. Journal of Electronic Materials 22 (1993) 607-610	1039
A28	R.A. Schwarzer Texture distributions imaged by energy dispersive x-ray diffraction. Steel Research 64 (1993) 570-574	1157
A29	R.A. Schwarzer A CCD camera system for the acquisition of backscatter Kikuchi patterns on an SEM. Materials Science Forum 157-162 (1994) 187-188 / Proc. ICOTOM 10, Clausthal 1993	100
A30	R.A. Schwarzer and S. Zaefferer An inexpensive CCD camera system for recording and on-line interpretation of TEM Kikuchi patterns. Materials Science Forum 157-162 (1994) 189-194 / Proc. ICOTOM 10, Clausthal 1993	312
A31	R.A. Schwarzer and S. Zaefferer On-line interpretation of SAD channeling patterns. Materials Science Forum 157-162 (1994) 195-200 / Proc. ICOTOM 10, Clausthal, 1993	176
A32	R.A. Schwarzer Preparation of high-resistance or sensitive samples for grain orientation measurements with electron microscopes. Materials Science Forum 157-162 (1994) 201-206 / Proc. ICOTOM 10, Clausthal 1993	272
A33	S. Zaefferer and R.A. Schwarzer On-line determination of complete deformation systems for cubic and hexagonal crystals in the TEM. Materials Science Forum 157-162 (1994) 241-246 / Proc. ICOTOM 10, Clausthal 1993	383
A34	S. Zaefferer and R.A. Schwarzer	188

	On-line interpretation of spot and Kikuchi patterns. Materials Science Forum 157-162 (1994) 247-250 / Proc. ICOTOM 10, Clausthal 1993	
A35	W. Xia and R.A. Schwarzer PC program for the calculation of ODF from SAD pole figures or from individual grain orientations. Materials Science Forum 157-162 (1994) 487-492 / Proc. ICOTOM 10, Clausthal 1993	300
A36	M. Barthel, D. Gerth, R.A. Schwarzer, P. Klimanek and U. Messerschmidt Individual grain orientation relations after high-speed hot rolling of steel rods. Materials Science Forum 157-162 (1994) 1131-1136 / Proc. ICOTOM 10, Clausthal 1993	479
A37	D. Gerth, S. Zaefferer and R.A. Schwarzer Stress-induced grain growth in thin Al-1% Si films on SiO ₂ /Si substrates. Materials Science Forum 157-162 (1994) 1205-1210 / Proc. ICOTOM 10, Clausthal 1993	1304
A38	K. Helming and R.A. Schwarzer Texture estimate from minimum ranges of SAD pole figures. Materials Science Forum 157-162 (1994) 1219-1224 / Proc. ICOTOM 10, Clausthal 1993	264
A39	S. Zaefferer, D. Gerth and R.A. Schwarzer Determination of local texture and deformation systems in TiAl6V4 and T40. Materials Science Forum 157-162 (1994) 1319-1324 / Proc. ICOTOM 10, Clausthal 1993	523
A40	D. Gerth and R.A. Schwarzer Local mechanical properties in thin Al layers on Si substrates calculated from measured grain orientations. Materials Science Forum 157-162 (1994) 1571-1576 / Proc. ICOTOM 10, Clausthal 1993	240
A41	K. Helming, R.A. Schwarzer, B. Rauschenbach, S. Geier, B. Leiss, H.-R. Wenk, K. Ullemeyer and J. Heinitz Texture estimates by means of components. Z. Metallkunde 85 (1994) 545-553	1627
A42	M. Wehrhahn and R.A. Schwarzer Crystal texture mapping by energy dispersive x-ray diffraction. Z. Metallkunde 85 (1994) 581-584	321
A43	S. Zaefferer and R.A. Schwarzer Automated measurement of single grain orientations in the TEM. Z. Metallkunde 85 (1994) 585-591	403
A44	D. Gerth, D. Katzer and R.A. Schwarzer The influence of local thermomechanical stress on grain growth in thin Al-1%Si layers on SiO ₂ /Si substrates. Physica status solidi (a) 146 (1994) 299-316	1360
A45	R.A. Schwarzer and S. Zaefferer Automated measurement of grain orientations and on-line determination of complete deformation systems with a TEM. Advances in X-Ray Analysis 38 (1995) 377-381	235
A46	R.A. Schwarzer and M. Wehrhahn Scanning x-ray apparatus for crystal texture mapping and micro-fluorescence analysis. Advances in X-Ray Analysis 38 (1995) 383-385	115
A47	R.A. Schwarzer, S. Zaefferer and K. Kunze The characterization of microtexture by orientation mapping. Advances in X-Ray Analysis 38 (1995) 547-550	144
A48	K. Helming, B. Rauschenbach and R.A. Schwarzer Analysis of crystallographic texture in small sample areas. Textures and Microstructures 26-27 (1996) 111-124	899
A49	R.A. Schwarzer The study of crystal texture by electron diffraction on a grain-specific scale. Microscopy and Analysis 45 (1997) 35-37	1574
A50	R.A. Schwarzer and M. Wehrhahn X-ray scanning apparatus for mapping texture and element distributions. Textures and Microstructures 29 (1997) 65-76	918
A51	R.A. Schwarzer Advances in crystal orientation mapping with SEM and TEM. Ultramicroscopy 67 (1997) 19-24	444
A52	R.A. Schwarzer Review Paper: Automated crystal lattice orientation mapping using a computer-controlled SEM. Micron 28 (1997) 249-265	702
A53	R.A. Schwarzer and J. Sukkau Automated crystal orientation mapping (ACOM) with a computer-controlled TEM by interpreting transmission Kikuchi patterns. Materials Science Forum 273-275 (1998) 215-222	731
A54	B. Schäfer and R.A. Schwarzer SAD pole figures in transmission and reflection using a high-grade CCD camera as an area detector. Materials Science Forum 273-275 (1998) 223-228	137
A55	A.H. Fischer and R.A. Schwarzer X-ray pole figure measurement and texture mapping of selected areas using an X-ray scanning apparatus. Materials Science Forum 273-275 (1998) 255-262	547

A56	A.H. Fischer, D. Weirauch and R.A. Schwarzer Peltier-cooled solid state drift-chamber detector for energy dispersive X-ray pole-figure measurement and texture mapping. Materials Science Forum 273-275 (1998) 263-269	670
A57	A. Huot, R.A. Schwarzer and J.H. Driver Texture of shear bands in Al-Mg3% (AA5182) measured by BKD. Materials Science Forum 273-275 (1998) 319-326	493
A58	A. Ziegenbein, H. Neuhäuser, J. Thesing, R. Ritter, H. Wittich, E. Steck, F. Springer and R.A. Schwarzer Investigations on local plasticity of CuAl polycrystals by in-situ observations and FEM simulations. Materials Science Forum 273-275 (1998) 363-368	264
A59	M. Lepper, A. von Glasow, D. Piscevic and R.A. Schwarzer Crystal texture and electromigration damage in Al-based interconnect lines studied by ACOM with the SEM. Materials Science Forum 273-275 (1998) 573-577	193
A60	A.H. Fischer and R.A. Schwarzer Mapping of local residual strain with an X-ray scanning apparatus. Materials Science Forum 273-275 (1998) 673-677	128
A61	R.A. Schwarzer Local crystal textures: experimental techniques and future trends. Fresenius J. Anal. Chem. 361 (1998) 522-526	451
A62	R.A. Schwarzer Crystallography and microstructure of thin films studied by X-ray and electron diffraction. Materials Science Forum 287-288 (1998) 23-60 Proc. 6th Intern. Symposium on Trends and New Applications of Thin Films, Regensburg 18-20 March 1998	911
A63	R.A. Schwarzer Automated crystal orientation mapping (ACOM) - a new perspective on the characterization of microstructure. Bulletin Czech and Slovak Crystallographic Association 5 (1998) 35-36 (Special Issue A - ECM-18)	89
A64	H.J. Bunge and R.A. Schwarzer Orientierungsstereologie - ein neuer Zweig der Texturforschung. TU Contact 2 (1998) 67-73	2093
A65	S. Kittelberger, U. Bolz, R.P. Huebener, B. Holzapfel, L. Mex and R.A. Schwarzer Transient local resistivity maximum during temperature dependent oxygen diffusion in YBa ₂ Cu ₃ O _{7-δ} thin films. Physica C 312 (1999) 7-20	2887
A66	R. Schwarzer and A.H. Fischer Ortsaufgelöste Textur- und Gitterdehnungsanalyse mit einer Röntgenrasterapparatur. TU Contact 5 (1999) 49-53	1682
A67	R.A. Schwarzer and A. Huot The study of microstructure on a mesoscale by ACOM. Crystal Research and Technology 35 (2000) 851-862	208
A68	A.K. Singh and R.A. Schwarzer Texture and anisotropy of mechanical properties in Titanium and its alloys. Z. Metallkunde 91 (2000) 702-716	8469
A69	R.A. Schwarzer, A.K. Singh and J. Sukkau Discrimination and mapping of phase distributions by ACOM. Materials Science and Technology 16 (2000) 1389-1392	1657
A70	R.A. Schwarzer Measurement of macro-texture by ACOM - an alternative to XRD. Materials Science and Technology 16 (2000) 1384-1388	1556
A71	H.J. Bunge and R.A. Schwarzer Orientation stereology - a new branch in texture research. Advanced Engineering Materials 3 (2001) 25-39	669
A72	A.K. Singh and R.A. Schwarzer Effect of mode of deformation by rolling on the development of texture in binary Ti-Mn alloys. Scripta Materialia 44 (2001) 375-380	606
A73	A.K. Singh and R.A. Schwarzer Texture of hot rolled and annealed binary Ti-Mn alloys. Z. Metallkunde 92 (2001) 184-190	3929
A74	A.K. Singh and R.A. Schwarzer Evolution of cold rolling texture in the binary alloys Ti-0.4Mn and Ti-1.8 Mn. Materials Science and Engineering A 307 (2001) 151-157	349
A75	R.A. Schwarzer EBSD studies of interconnect lines. Revue de Métallurgie - SF2M - JA2001 (2001) 65	181
A76	R.A. Schwarzer Phase discrimination by automated BKD. Analytical and Bioanalytical Chemistry (ABC) 374 (2002) 699-702	301
A77	R.A. Schwarzer and J. Sukkau	268

	Automated evaluation of Kikuchi patterns by means of Radon and Fast Fourier Transformations, and verification by an Artificial Neural Network. Advanced Engineering Materials 5 (2003) 601-606	
A78	I.V. Gervas'eva, B.K. Sokolov, R.A. Schwarzer, V.V. Gubernatorov and Ya. V. Podkin Effect of the initial grain size on the structural inhomogeneity and texture formation upon cold rolling and annealing of the Fe-3% Si alloy. The Physics of Metals and Metallography 96 Suppl. 1 (2003) S43-S52	1044
A79	R.A. Schwarzer Automated grain orientation measurement by backscatter Kikuchi diffraction. The Physics of Metals and Metallography 96 Suppl. 1 (2003) S104-S115	811
A80	J. Pospiech, M. Ostafin and R.A. Schwarzer Microstructural aspects of crossrolling of copper. Inzynieria Matrialowa 24 (2003) 802-805	373
A81	Z. Jasienski, J. Pospiech, R. Schwarzer, A. Piatkowski and A. Litwora Inhomogeneity of deformation induced by the change of deformation path in channel-die compressed (112)[11-1] copper single crystals. Inzynieria Matrialowa 25 (2004) 359-363	513
A82	Z. Jasienski, J. Pospiech, A. Piatkowski, R. Schwarzer, A. Litwora and M.Ostafin Textural and structural effects of the change of deformation path in copper single crystals in a channel-die test. Archives of Metallurgy and Materials 49 (2004) 11-28	962
A83	R.A. Schwarzer Texture in hot extruded, hot rolled and laser welded magnesium base alloys. Solid State Phenomena 105 (2005) 23-28	310
A84	M. Ostafin, J. Pospiech and R.A. Schwarzer Microstructure and texture in copper sheets after reverse and cross rolling. Solid State Phenomena 105 (2005) 309-314	404
A85	J. Pospiech, Z. Jasienski, M. Ostafin and R.A. Schwarzer Local and global effects in texture and microstructure observed after channel-die compression of copper single crystals and after cross-rolling of copper sheets. Solid State Phenomena 105 (2005) 321-326	252
A86	R.A. Schwarzer Deformation textures of fcc metals subjected to frictional and abrasive wear. Solid State Phenomena 105 (2005) 195-200	119
A87	A.K. Singh and R.A. Schwarzer Evolution of texture in pure magnesium during rolling. Z. Metallkunde 96 (2005) 345- 351	492
A88	R.A. Schwarzer Advances in the analysis of texture and microstructure. Archives of Metallurgy and Materials 50 (2005) 7-20	278
A89	M. Ostafin, J. Pospiech and R.A. Schwarzer The evolution of deformation texture in copper by unidirectional and by cross rolling. Archives of Metallurgy and Materials 50 (2005) 403-409	107
A90	R.A. Schwarzer Local texture and back-end defect in hot extruded AZ91 magnesium alloy. Z. Metallkunde 96 (2005) 1005-1008	260
A91	R.A. Schwarzer Automated crystal orientation measurement by backscatter Kikuchi diffraction. Z. Kristallographie Suppl. 23 (2006) 163-168	108
A92	J. Pospiech, M. Ostafin and R. Schwarzer The effect of the rolling geometry on the texture and microstructure in AZ31 and copper. Archives of Metallurgy and Materials 51 (2006) 37-42	483
A93	A.K. Singh and R.A. Schwarzer Development of cold rolling texture in the binary Ti-0.4Mn alloy. Metals Materials and Processes 18 (2006) 351-360	578
A94	B.K. Sokolov, I.V. Gervas'eva, D.P. Rodionov, R.A. Schwarzer and Ya. V. Podkin Effect of deformation inhomogeneities on the formation of texture during cold rolling and annealing of nickel single crystals. The Physics of Metals and Metallography 102 (2006) 439-451	517
A95	R.A. Schwarzer The preparation of Mg, Cd and Zn samples for crystal orientation mapping with BKD in an SEM. Microscopy Today 15 March issue (2007) 40, 42	368
A96	H.-G. Brokmeier, S. Lenser, R. Schwarzer, V. Ventzke, S. Riekehr, M. Kocak and J. Homeyer Crystallographic texture of dissimilar laser welded Al5083-Al6013 sheets. Materials Science Forum 539-543 (2007) 3894-3899	1767
A97	A.K. Singh and R.A. Schwarzer Evolution of texture during thermomechanical processing of Titanium and its alloys. Trans. Indian Inst. Met. 61 (2008) 371-387	621
A98	R.A. Schwarzer Spatial resolution in ACOM - What will come after EBSD. Microscopy Today 16 January issue (2008) 5-10	196

A99	R.A. Schwarzer A fast ACOM/EBSD system. Archives of Metallurgy and Materials 53 (2008) 5-10	155
A100	R.A. Schwarzer and J. Hjelen High-speed orientation microscopy with offline solving sequences of EBSD patterns. Solid State Phenomena 160 (2010) pp 295-300	116
A101	R.A. Schwarzer Orientation microscopy with Fast EBSD Materials Science and Technology 26 (2010) 646-649	107
A102	J. Sukkau and R.A. Schwarzer Reconstruction of Kikuchi patterns by intensity-enhanced Radon transformation. Pattern Recognition Letters 33 (2012) 739-743	390
A103	R.A. Schwarzer and J. Sukkau Electron Back Scattered Diffraction: Current state, prospects and comparison with X-ray diffraction texture measurement. The Banaras Metallurgist 18 (2013) 1-11	219
A104	R. Schwarzer Orientation microscopy using the analytical scanning electron microscope. Practical Metallography 51 (2014) 160-179	422
A105	R.A. Schwarzer and J. Hjelen Backscattered electron imaging with an EBSD detector. Microscopy Today 23 January Issue (2015) 12-17	2062
A106	R. Schwarzer and C. Esling Texture et anisotropie des matériaux polycristallins - Cartographie par diffraction de Kikuchi. Techniques de l'Ingénieur - Matériaux: M3040 V2 (2021) 1-16 & DOC M3040 V2 (2021) 1-3 DOI 10.51257/a-v2-m3040	2290
Conference Proceedings		
C1	R. Schwarzer, W. Leiser and K.H. Gaukler Untersuchungen mit dem Photoemissions-Elektronenmikroskop (PhEEM). BEDO (= Beiträge zur elektronenmikroskop. Direktabbildung von Oberflächen) 5 (1972) 977-986	400
C2	G. Möllenstedt and R. Schwarzer Erste Erfahrungen mit einer Ringblende im Emissions-Elektronenmikroskop Metioskop KE3. BEDO 6 (1973) 495-506	419
C3	R. Schwarzer Zur Abhängigkeit des Kontrastes in einem Emissions-Elektronen-Mikroskop von Art und Größe der Aperturblende. BEDO 7 (1974) 351-362	449
C4	U. Fritz and R. Schwarzer Erhöhte Bildhelligkeit im Photoemissions-Elektronenmikroskop Metioskop KE3 durch eine neuartige Anodenplatte. BEDO 9 (1976) 157-166	558
C5	J. Hofmeister and R. Schwarzer Der vektorielle Photoeffekt im Photoemissions-Elektronenmikroskop. BEDO 9 (1976) 167-184	1455
C6	R. Schwarzer Transmissions-Kikuchi-Diagramme und Aufnahmen im konvergenten Elektronenbündel an epitaktisch aufgedampften Kupferschichten. BEDO 10 (1977) 195-202	643
C7	K. Drescher and R. Schwarzer Der Kontrast im Photoemission-Elektronenmikroskop bei der Auslösung durch kurz- und langwellige UV-Strahlung. BEDO 10 (1977) 735-744	1240
C8	U. Fritz and R. Schwarzer Erhöhung des Kontrastes und der Bildhelligkeit im Photoemissions-Elektronenmikroskop durch Gasbelegungen auf Kupfer. BEDO 10 (1977) 745-764	1364
C9	R. Schwarzer and K.H. Gaukler Long working distance ion gun using a field-ionization source. Proc.7th Intern. Vacuum Congress & 3rd Intern. Conference on Solid Surfaces, Wien 1977, 2547-2549	93
C10	R. Schwarzer, J.I. Cisneros and Z.P. Arguello Messung der photoelektrischen Ausbeute und der Energieverteilung von Photoelektronen aus LiF-Einkristallen im Photoemissions-Elektronenmikroskop (PEEM). BEDO 11 (1978) 209-214	341
C11	R.A. Schwarzer Physical aspects of emission electron microscopy. Proc. 1st EEM Conference, Tübingen 1979 / BEDO 12/2 (1979) 3-38	1304
C12	R.A. Schwarzer Evidence for vectorial photoelectric effect from PEEM study of biological thin sections. Proc. 1st EEM Conference, Tübingen 1979 / BEDO 12/2 (1979) 165-170	805

C13	R.A. Schwarzer Determination of fibre textures in thin gold films by evaluating pole figures with the TEM. Proc. 10th Intern. Congress Electron Microscopy, Hamburg 1982, Vol. 2, 129-130	557
C14	R. Schwarzer Intensitätskorrektur für die Messung von Polfiguren im TEM. BEDO 16 (1983) 131-134	182
C15	R.A. Schwarzer and H. Weiland Computer-aided indexing of Kikuchi patterns from cubic, tetragonal, and hexagonal crystals in the determination of grain orientations. Proc. 8th European Congress on Electron Microscopy (EUREM 1984), Budapest 1984, 341-342	177
C16	R. Schwarzer and H. Weiland On-line computerized evaluation of Kikuchi patterns for the determination of preferred orientations and orientation correlations. Proc. 7th Intern. Conf. on Textures of Materials (ICOTOM 7), Holland 1984, 839-843	677
C17	H. Weiland and R. Schwarzer The determination of preferred orientations with the TEM. Proc. 7th Intern. Conf. on Textures of Materials (ICOTOM 7), Holland 1984, 857-862	644
C18	H. Weiland and R. Schwarzer On-line Auswertung von Kikuchi- und Channelling-Diagrammen. BEDO 18 (1985) 55-60	645
C19	R. Schwarzer Polfigurmessung mit einem computergesteuerten Transmissions-Elektronenmikroskop. BEDO 18 (1985) 61-68	471
C20	H. Weiland and R. Schwarzer Automated polefigure measurements and determination of single grain orientations with a computer-controlled TEM. Proc. 6th Intern. Congress Electron Microscopy, Kyoto 1986, 451	68
C21	R.A. Schwarzer and H. Weiland Preferred crystal orientations studied with a computer-controlled transmission electron microscope. Proc. Intern. Symposium on Electron Optics (ISEOB 86), Institute of Electronics, Academia Sinica, Beijing 1987, 222-224	27
C22	R.A. Schwarzer and H. Weiland Measurement of local textures by electron diffraction - Comparison with X-ray texture analysis. Proc. 8th Intern. Conf. on Textures of Materials (ICOTOM 8), Santa Fe 1987, 203-208	252
C23	H. Weiland, R.A. Schwarzer and H.J. Bunge The textures of ferrite and martensite in a dual-phase steel - measured separately by electron diffraction. Proc. 8th Intern. Conf. on Textures of Materials (ICOTOM 8), Santa Fe 1987, 953-958	229
C24	R.A. Schwarzer Quantitative TEM pole-figures of deformed titanium. Proc. 9th Europ. Congr. Electron Microscopy (EUREM 88), York 1988, Inst. Physics Conf. Series No. 93 (1988), Vol. 2, 23-24	260
C25	L.M. Matthews and R.A. Schwarzer Orientation determination of ferrite and lath martensite in a dual phase steel containing 12% Cr. Proc. 9th Europ. Congr. Electron Microscopy (EUREM 88), York 1988, Inst. Physics Conf. Series No. 93 (1988), Vol. 2, 497-498	92
C26	R. Schwarzer Die Aufnahme von Reflexions-Kikuchi-Diagrammen im REM mit einer peltiergekühlten, integrierenden CCD-Videokamera. BEDO 22 (1989) 279-282	208
C27	R. Schwarzer Röntgen-Rasterapparatur zur Aufnahme von Textur-Verteilungsbildern mittels energiedispersiver Beugung. BEDO 22 (1989) 283-288	281
C28	R. Schwarzer Die Ermittlung von Einzelorientierungen und Orientierungskorrelationen in Al-Sputterschichten. BEDO 22 (1989) 357-360	233
C29	R.A. Schwarzer Scanning X-ray microscopy for texture mapping by energy dispersive diffraction. 12th Intern. Congr. X-Ray Optics and Microanalysis, (12th IXCOM), Cracow 1989, 205-208	626
C30	R.A. Schwarzer Electron diffraction texture analysis. Proc. 1st Intern. Symposium on Advanced Materials, Islamabad 1989, 65-70	714
C31	R. Schwarzer Elektronenmikroskopische Messung der Kristalltextur in IC-Metallisierungsschichten. 6. Tagung Festkörperanalytik, Karl-Marx-Stadt 1990, Tagungsband 7/1990 der TU Karl-Marx-Stadt, 70-71	83
C32	R. Schwarzer Abbildende Röntgen-Rasterapparatur mit ED Beugung für Textur- und RF-Analysen. 6. Tagung Festkörperanalytik, Karl-Marx-Stadt 1990, Tagungsband 7/1990 der TU Karl-Marx-Stadt, 72-73	78

C33	R. Schwarzer Röntgen-Rasterapparatur zur Abbildung von Texturfeldern mittels ED Beugung und zur RF-Analyse. Proc. Arbeitskreis Röntgentopographie 1990 (Röto 90), 48-54	737
C34	R. Schwarzer Kristalltextur und Hügelbildung in Dünnschichtmetallisierungen. Proc. 5th Intern. Conference on Interconnection Technology in Electronics, Fellbach 1990, 73-76	258
C35	R.A. Schwarzer and H. Weiland Electron microscopy for the determination of preferred crystal orientations - A concise review. Proc. 12th Intern. Congr. for Electron Microscopy, Seattle 1990, Vol. 4, 434-435	
C36	S. Zaefferer and R. Schwarzer Automatisierte Messung von Einzelorientierungen im TEM. BEDO 27 (1994) 159-168	555
C37	K. Kunze, S. Zaefferer and R. Schwarzer Orientierungs-Mapping mit dem Raster-Elektronenmikroskop. BEDO 27 (1994) 169-176	449
C38	R.A. Schwarzer, K. Kunze and S. Zaefferer The determination of microscale crystal texture. Proc. 1st Slovene-German Seminar on Joint Projects in Materials Science and Technology, Portoroz, 1994, ed. FZ Jülich, ISBN 3-89336-155-3, S. 41-46	355
C39	R.A. Schwarzer, F. Springer and S. Zaefferer Crystal orientation mapping by digital beam scan and automated interpretation of backscatter Kikuchi patterns in the SEM. Proc. 11th Intern. Conf. on Textures of Materials (ICOTOM 11), Xi'an (China) 1996, 43-52	1089
C40	R.A. Schwarzer, N.C. Krieger Lassen and B. Schäfer Electron texture goniometer consisting of a TEM with side-entry goniometer and a CCD camera as an area detector. Proc. 11th Intern. Conf. on Textures of Materials (ICOTOM 11), Xi'an (China) 1996, 170-175	299
C41	R.A. Schwarzer and M. Wehrhahn Principles and applications of energy-dispersive x-ray diffraction texture imaging. Proc. 11th Intern. Conf. on Textures of Materials (ICOTOM 11), Xi'an (China) 1996, 176-181	1766
C42	F. Wagner, P. Obringer, R.A. Schwarzer, G. Goer and D. Sarti The variation of microstructure in a polycrystalline silicon ingot. Proc. 11th Intern. Conf. on Textures of Materials (ICOTOM 11), Xi'an (China) 1996, 1406-1409	46
C43	R.A. Schwarzer Automated crystal orientation mapping (ACOM) of thin metallization layers and interconnects. Proc. MRS 1997 Spring Meeting, Symp. I, San Francisco, March 31-April 4, 1997 Materials Research Society Symposium Proceedings Volume 472 (1997) 281-292	1149
C44	A.H. Fischer and R.A. Schwarzer Ortsaufgelöste Gefüge- und Texturanalyse mit einer Röntgenrasterapparatur auf der Basis eines Philips X'Pert MRD-Systems. Tagungsband 9. Philips-Symposium Röntgenbeugung 1998 in Velen, Philips Kassel 1998, 67-77 (cf. A66)	159
C45	R.A. Schwarzer Orientation stereology by ACOM - A new means to characterize microstructure. Proc. Intern. Materials Research Congress, Cancun 98 (Mexico), Academia Mexicana de Ciencia de Materiales, Cuernavaca 1998, 90	
C46	F. Springer and R.A. Schwarzer Applications of ACOM on bulk materials and thin films. Proc. Intern. Materials Research Congress, Cancun 98 (Mexico), Academia Mexicana de Ciencia de Materiales, Cuernavaca 1998, 90	
C47	A. Huot and R.A. Schwarzer Texture of shear bands in Al-Mg3% (AA5182) and TiAl6V4 measured by BKD. Proc. Intern. Materials Research Congress, Cancun 98 (Mexico), Academia Mexicana de Ciencia de Materiales, Cuernavaca 1998, 91	18
C48	B. Schäfer and R.A. Schwarzer Measurement of SAD and RHEED pole figures by using a high-grade CCD camera as an area detector in the TEM. Proc. Intern. Materials Research Congress, Cancun 98 (Mexico), Academia Mexicana de Ciencia de Materiales, Cuernavaca 1998, 92	
C49	A.H. Fischer and R.A. Schwarzer Mapping of texture, lattice strain and element distributions with an X-ray scanning apparatus. Proc. Intern. Materials Research Congress, Cancun 98 (Mexico), Academia Mexicana de Ciencia de Materiales, Cuernavaca 1998, 92-93	
C50	R.A. Schwarzer Modern diffraction techniques for the structural analysis of metal surfaces. Handbuch Fachrahmenprogramm Geospectra 99, Düsseldorf 1999, 42-43	163
C51	R.A. Schwarzer Development of BKD hardware: Accomplishments and opportunities. Proc. Microscopy and Microanalysis '99, Oregon 1999. Microscopy and Microanalysis 5, Suppl. 2, (1999) 242-243	12
C52	R.A. Schwarzer	366

	Advancements of ACOM and applications to orientation stereology. Proc. 12th Intern. Conf. on Textures of Materials (ICOTOM12), Montreal 1999, 52-61	
C53	R.A. Schwarzer and A.H. Fischer Mapping of lattice strain and texture distributions with an x-ray scanning apparatus. Proc. 12th Intern. Conf. on Textures of Materials (ICOTOM 12), Montreal 1999, 204-210	231
C54	A. Huot, A.H. Fischer, A. von Glasow and R.A. Schwarzer Quantitative texture analysis of Cu damascene interconnects. In: O. Kraft, E. Arzt, C.A. Volkert, P. Ho and H. Okabayashi (Eds.): Proc. 5th Intern. Workshop on Stress-Induced Phenomena in Metallization, MPI Stuttgart 1999. AIP Conference Proceedings 491, Melville N.Y. 1999, 261-264	174
C55	A.H. Fischer, A. von Glasow, A. Huot and R.A. Schwarzer Crystal texture of electroplated damascene Cu interconnects. Proc. Advanced Metallization Conference 1999 (AMC), Orlando (Florida), Materials Research Society, 1999, 137-141	312
C56	R.A. Schwarzer, A. Huot and A.H. Fischer Macro- and microtexture of copper metallization layers measured by ACOM in the SEM. MRS Spring Meeting, San Francisco, 2000, Abstracts p. 142	133
C57	R.A. Schwarzer The characterization of microstructure by ACOM / EBSD and orientation stereology. 20 th European Crystallographic Meeting (ECM 20) Cracow 2001, Book of Abstracts page 137	10
C58	J. Pospiech, R.A. Schwarzer and K. Wiencek Komputerowe opracowanie danych z automatycznych pomiar ϕ dyfrakcyjnych. (Data elaboration from automatic diffraction measurements. <i>In Polish language</i>) KomPlasTech2003, Wisla Jawornik, 2003, 215-222	425
C59	J. Pospiech, M. Ostafin and R.A. Schwarzer Tekstura i mikrostruktura (i ich wzajemne relacje) po walcowaniu poprzecznym i diagonalnym. (<i>in Polish language: Texture and microstructure (their mutual relation) after cross and oblique rolling.</i> Seminar on the occasion of Prof. Z. Jasienski's 70 th birthday) in: Niejednorodności odkształcenia w procesach przeróbki plastycznej i rekrytalizacji. Seminarium poświęcone 70 rocznicy urodzin prof. Z. Jasińskiego. PAN IMIM Kraków, 21 stycznia 2005, p. 49-59	
C60	M. Søfferud, J. Hjelen, M. Karlsen, T. Breivik, N.C. Krieger Lassen and R. Schwarzer Development of an ultra-fast EBSD detector system. in: M. Luysberg, K. Tillmann, T. Weirich (Eds.), Proc. 14th European Microscopy Congress EMC2008 Vol.1: Instrumentation and Methods, Aachen, 1-5 Sept. 2008, Springer Berlin Heidelberg, 2008, ISBN 978-3-540-85154-7	45
C61	R. Schwarzer and J. Sukkau Reproduzierbare EBSD-Messung im REM durch Pattern Streaming und off-line Auswertung Vortragstexte der 47. Metallographie-Tagung, Friedrichshafen 2013, 227-232 INVENTUM GmbH, Bonn 2013, ISBN 978-3-88355-398-6	197
Books and various publications		
B1	R. Schwarzer Der Einfluß von Loch- und Ringblenden auf den Bildkontrast und die Energieverteilung der Elektronen im Emissions- Elektronenmikroskop. PhD Thesis, University of Tübingen (Germany), 1975	
B2	R. Schwarzer Die Bestimmung der lokalen Textur mit dem Elektronenmikroskop. Habilitation Thesis, Clausthal University of Technology (Germany), 1989	
B3	R.A. Schwarzer and H. Weiland Electron diffraction pole figure measurements. in H.J. Bunge (ed.): Experimental Techniques of Texture Analysis. DGM-Verlagsgesellschaft, Oberursel and New York 1986, p. 287-300	1149
B4	H. Weiland and R. Schwarzer On-line texture determination by Kikuchi or channeling patterns. in H.J. Bunge (ed.): Experimental Techniques of Texture Analysis. DGM-Verlagsgesellschaft, Oberursel and New York 1986, p. 301-313	647
B5	R.A. Schwarzer Crystal texture analysis by means of electron diffraction. in H.J. Bunge and C. Esling (eds.): Advances and Applications of Quantitative Texture Analysis. DGM- Verlagsgesellschaft, Oberursel and New York 1991, p. 51-72	1435
B6	R.A. Schwarzer (ed.) Proceedings International Conference on Texture and Microstructure of Polycrystals, ITAP-1, Clausthal 22. - 25. September 1997. Materials Science Forum 273-275 (1998) ISBN: 0-87849-802-8	
B7	R.A. Schwarzer Automated electron backscatter diffraction: Present state and prospects. In: A. Schwartz, M. Kumar and B.L. Adams (eds.): Electron Backscatter Diffraction in Materials Science, Kluwer Academic / Plenum Publishers, 2000, p. 105-122 ISBN: 0-306-46487-X	543
B8	R.A. Schwarzer Modern diffraction techniques for texture analysis.	586

	In R.K. Ray et al. (eds.): Materials for the Third Millenium, Oxford &IBH Publ. Co., New Delhi 2001, p. 171-195	
B9	C. Esling, M. Humbert, R.A. Schwarzer and F. Wagner (eds.) Proceedings 2nd International Conference on Texture and Microstructure of Polycrystals, ITAP-2, Metz, July 7-9, 2004, Solid State Phenomena vol. 105 (2005) ISBN: 3-908451-09-4	
B10	L. Spieß, R. Schwarzer, H. Behnken and G. Teichert Moderne Röntgenbeugung - Röntgendiffraktometrie für Materialwissenschaftler, Physiker und Chemiker. Teubner B.G. GmbH Verlag, 2005 ISBN: 3-519-00522-0	Chapt.11 2655
B11	R.A. Schwarzer Texture mapping by scanning X-ray diffraction and related methods. In: A.K. Singh (ed.): Advanced X-ray Techniques in Research and Industry. IOS Press, Amsterdam, The Netherlands, 2005, p. 50-65 ISBN: 1-58603-537-1 Indian edition: Capital Publishing Company, New Delhi, 2006 ISBN: 81-85589-41-0	634
B12	D. Rammlmair, M. Wilke, K. Rickers, R.A. Schwarzer, A. Möller and A. Wittenberg Methodological Developments and Applications - 7.6 Geology, Mining, Metallurgy. in: B. Beckhoff, B. Kanngießner, N. Langhoff, R. Wedell and H. Wolff (eds.): Handbook of Practical X-Ray Fluorescence Analysis. Springer-Verlag Berlin Heidelberg 2006, pp.640-687 ISBN 3-540-28603-9	1208
B13	L. Spieß, G. Teichert, R. Schwarzer, H. Behnken and Ch. Genzel Moderne Röntgenbeugung - Röntgendiffraktometrie für Materialwissenschaftler, Physiker und Chemiker. 2nd edition Vieweg + Teubner, 2009 Paperback ISBN: 978-3-8351-0166-1	Chapt. 11&14 3579
B14	H. Klein and R.A. Schwarzer (eds.) Proceedings 3 rd International Conference on Texture and Microstructure of Polycrystals, ITAP-3, Göttingen, 23-25 September 2009 Solid State Phenomena vol. 160 (2010) ISBN: 3-908451-78-7 ISBN-13 978-3-908451-78-5	
B15	R.A. Schwarzer, D.P. Field, B.L. Adams, M. Kumar and A.J. Schwartz: Present state of electron backscatter diffraction and prospective developments. in: Adam J. Schwartz, Mukul Kumar, Brent L. Adams, David P. Field (eds.): Electron Backscatter Diffraction in Materials Science, 2nd edition, Springer Science+Business Media, 2009, pp. 1-20	546
B16	Hans Joachim Bunge and Robert Arthur Schwarzer Crystallographic Texture and Plastic Anisotropy. in: D. Banabic (ed.): Multiscale Modelling in Sheet Metal Forming. Springer Intern. Publishing Switzerland 2016, pp. 47-78 ISBN 978-3-319-44068-2	1149

Publications can be obtained on request as pdf reprints where indicated.

Please contact me by e-mail: " mail *at* ebsd.info "

[Home](#)

[Basics](#)

[TKD](#)

[Radon vs Hough](#)

[FastEBSD](#)

[Evaluation](#)

[Conclusions](#)

[Downloads](#)

[Glossary](#)