Proceedings of the
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Part 2

ICOTOM-10

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Edited by
H.J. Bunge

TRANS TECH PUBLICATIONS
Switzerland - Germany - UK - USA
3.3 LOCAL TEXTURES (SHEAR BANDS, EBSP, MISORIENTATION)

Invited Lecture:
Substructure Analysis in Textured Metallic Materials

*P. Klimanek*

Individual Grain Orientation Relations after High-Speed Hot Rolling of Steel Rods

*M. Barthel D. Gerth R.A. Schwarzer P. Klimanek U. Messerschmidt*

Local Orientation Investigation on the Ridging Phenomenon in Fe 17% Cr Steel

*K. Bethke M. Hölsher K. Lücke*

The Influence of Initial Microstructure on the Recrystallization Textures of Aluminium Alloys after Hot Deformation by Laboratory Simulation

*R.K. Bolingbroke G.J. Marshall R.A. Ricks*

Influence of the Initial Texture on the Microstructure- and Microtexture Development during High Temperature Low Cycle Fatigue

*S. Brodesser G. Brückner G. Gottstein*

EBSP and SIMS Studies of Oxygen Tracer Diffusion in the High Temperature Superconductor La$_2$Sr$_x$CuO$_4$

*J. Claus G. Borchardt S. Weber S. Scherrer*

Deformation Banding and Its Influence on High SFE FCC Rolling Texture Development

*B.J. Duggan C.S. Lee R.E. Smallman*

Evidence for the Existence of a Special Class of Crystallographic Misorientations

*D.P. Field*

The Dependence of Dislocation Density and Cell Size on Crystallographic Orientation in Aluminum

*D.P. Field H. Weiland*

Microtexture Development during High Temperature Deformation of Nimonic 80A Single Crystals

*J. Fischer-Bühner D. Ponge G. Gottstein*

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*T. Furu Ø. Sodahl E. Nes L. Hanssen O. Lohne*
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**Invited Lectures:**

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  D.B. Knorr

**Texture Formation in Hexagonal Materials**
  M.-J. Philippe

The Effects of Impurity Elements on the Preferred Orientation during Melt Spinning of Dilute Zn-Alloys
  M.V. Akdeniz  J.V. Wood

Relations between Texture, Superplastic Deformation and Mechanical Properties of Thin TA6V Slabs
  O. Benay  A.S. Lucas  S. Obadia  A. Vadon

Texture in Zircaloy-4: Effect of Thermomechanical Treatments
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Texture of Electroplated Coatings of Copper and Bismuth Telluride
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Experimental Studies of Texture Development in Co-Cr Films
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Electric Field Induced Domain Formation in Surface Stabilized Ferroelectric Liquid Crystal Cells
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W. Winter H.-G. Brokmeier H. Siemes

Influence of Segregation of Phosphorous on Texture Development in Cold-Rolled Fe-P Alloys during Annealing
L. Zhang L. Xiong H. Ning D. Ye B.J. Duggan

4. TEXTURE AND DIRECTIONAL PROPERTIES OF MATERIALS

Invited Lecture:
Anisotropic Properties of Minerals and Rocks
H. Kern

The Influence of Microstructure and Texture on Fracture Toughness in Titanium Alloy CORONA-5
S. Benhaddad C. Quesne R. Penelle

Orientation Dependence of the Permeability in Textured Soft Magnetic Materials
M. Birsan J.A. Szpunar

Anomalies of Young's Modulus in Fe-Cu Composites after High Degrees of Deformation
W. Böcker H.J. Bunge T. Reinert

Stress Birefringence in Textured Silver Chloride
P. Dietz H. Gielefien

Limited Fibre Components in Texture Analysis: Texture Contribution in Anisotropy of Physical Properties
V.N. Dnieprenko S.V. Divinskii

Local Mechanical Properties in Thin Aluminium Layers on Silicon Substrates Calculated from Measured Grain Orientations
D. Gerth R.A. Schwarzer

Toughness Anisotropy in Brittle Materials
M.D. Grah K.J. Bowman

Numerical Analysis of Stiffness in Sheet Products Based on Crystal Anisotropy
S. Hiwatashi T. Hatakeyama K. Ushioda M. Usuda

The Dependence of the Anisotropy and Texture Properties of Injection Moulded Liquid Crystal Polymer Parts on Moulding Parameters
W. Hufenbach M. Lepper
Use of Irreducible Spherical Tensors in the Calculation of the Mean Elastic Properties of Polycrystals

M. Humbert L. Zuo J. Muller C. Esling

Derivation of Yield Criteria of Cubic Metals from Schmid's Law

H.-T. Jeong D.N. Lee K.H. Oh

Calculation of Average Elastic Moduli of Polycrystalline Materials Including BaTiO₃ and High-T_c Superconductors

H. Kiewel L. Fritsche

Textures and Plastic Strain Ratios of Planar Isotropic Sheet Metals

I.S. Kim

Texture and Formability of Aluminum Sheets

S. Kohara

Strain Localization and Fracture in Anisotropic FCC Metal Sheets: Shear Bands

J. Kusnierz

On Some Methodical Developments Concerning Calculations Performed Directly in the Orientation Space

S. Matthies G.W. Vine!

On the Geometric Mean of Physical Tensors Using Orientation Distributions

S. Matthies M. Humbert

The Effect of Texture and Strain on the r-Value of Heavy Gauge Tantalum Plate

Ch. Michaluk J. Bingert C.S. Choi

Determination of Young's Modulus in Textured CuZnAl Shape Memory Alloys

N.J. Park H.J. Bunge

Effect of Texture and Microstructure on the Mechanical Properties of Zn Alloys

M.J. Philippe I. Beaujean E. Bouzy M. Diot J. Wegria C. Esling

Diamagnetic Anisotropy of Precambrian Quartzites

( Moeda Formation, Taquaral Valley, Minas Gerais, Brazil)

H. Quade T. Reinert D. Schmidt

Magnetic Anisotropy and Texture of Banded Hematite Ores

H. Quade T. Reinert

The Work Hardening of Pearlite during Wire Drawing

P. Watté P. Van Houtte E. Aernoudt J. Gil Sevillano

W. Van Raemdonck I. Lefever

Texture Gradient Effects in Tantalum

S.I. Wright A.J. Beaudoin G.T. Gray III
5. MATHEMATICAL MODELLING OF TEXTURE FORMATION AND MATERIALS PROPERTIES

Invited Lectures:

Finite Element Modelling of Polycrystalline Solids
*P.R. Dawson  A.J. Beaudoin  K.K. Mathur*

Modelling the Effects of Static and Dynamic Recrystallization on Texture Development
*J.J. Jonas  L.S. Tóth  T. Urabe*

Theory of Grain Boundary Structure Effects on Mechanical Behaviour
*B.L. Adams  T.A. Mason  T. Olson  D.D. Sam*

Simulation of Rolling and Deep Drawing Textures in Ferritic Steels:
Application to Ear Profiles Calculation in Deep Drawing
*D. Ceccaldi  F. Yala  T. Baudin  R. Penelle  F. Royer*

An Equilibrium-Based Model for Anisotropic Deformations of Polycrystalline Materials
*Y.B. Chaste  P.R. Dawson*

Interconnection of Texture Development and Alternative Slipping of Different Types of Slip Systems: Computer Simulation
*S.V. Divinskii  V.N. Dnieprenko*

A New Theory of the FCC Rolling Texture Transition
*B.J. Duggan  C.S. Lee  R.E. Smallman*

Effect of Cube Nucleus Distribution on Cube Texture
*B.J. Duggan  C.Y. Chung*

Texture Development and Simulation of Inhomogeneous Deformation of FeCr during Hot Rolling
*A.I. Fedosseev  D. Raabe  G. Gottstein*

On the Effect of Grain Orientation on Deformation Texture
*J. Hirsch*

Experimental and Theoretical Study of the Recrystallization Texture of a Low Carbon Steel Sheet
*L. Kestens  U. Köhler  P. Van Houtte  E. Aernoudt  H.J. Bunge*

Modelling Cyclic Deformation Textures with Orientation Flow Fields
*H. Klein  H.J. Bunge*
Failures to Model the Development of a Cube Texture during the High Temperature Compression of Al-Mg Alloys
   U.F. Kocks  S.R. Chen  P.R. Dawson

Calculation of the Recrystallization Textures of Cubic Metals
   U. Köhler  H.J. Bunge

Comparison of a Self-Consistent Approach and a Pure Kinematical Model for Plastic Deformation and Texture Development
   R.A. Lebensohn  R.E. Bolmaro

Lattice Rotation during Plastic Deformation with Grain Subdivision
   T. Leffers

Texture of Microstructures in BCC Metals for Various Loading Paths
   X. Lemoine  M. Berveiller  D. Muller

Modelling of the Texture Formation in Electrodeposition Process
   D.Y. Li  J.A. Szpunar

Simulation of Recrystallization Texture in Copper
   Y.S. Liu  F. Wang  J.Z. Xu  Z.D. Liang

Grain Growth Simulation by Monte Carlo Method in a HiB Fe 3% Si Alloy
   P. Paillard  R. Penelle  T. Baudin

Effect of Deep Drawing on Texture Development in Extra Low Carbon Steel Sheets
   J. Savoie  D. Daniel  J.J. Jonas

Contribution of EBSP to the Determination of the Rotation Flow Field
   M. Serghat  M.J. Philippe  C. Esling  B. Bouzy

A Modified Self Consistent Viscoelastic Model Based on Finite Element Results
   L.S. Tóth  A. Molinari

Prediction of Forming Limits of Titanium Sheets Using the Perturbation Analysis with Texture Development
   L.S. Tóth  D. Dudzinski  A. Molinari

Taylor Simulation of Cyclic Textures at the Surface of Drawn Wires Using a Simple Flow Field Model
   P. Van Houtte  P. Watté  E. Aernoudt  J. Gil Sevillano  I. Lefever  W. Van Raemdonck

Modelling Microstructural Evolution of Multiple Texture Components during Recrystallization
   R.A. Vandermeer  D. Juul Jensen
On the Theory of Compromise Texture 1895
H.E. Vaine T.O. Saetre E. Nes

Anisotropic Finite-Element Prediction of Texture Evolution in Material Forming 1901
N. Wang F.R. Hall I. Pillinger P. Hartley C.E.N. Sturgess P. De Wever
A. Van Bael J. Winters P. Van Houtte

Finite-Element Prediction of Heterogeneous Material Flow during Tensile Testing of Anisotropic Material 1909
J. Winters A. Van Bael P. Van Houtte N. Wang I. Pillinger
P. Hartley C.E.N. Sturgess

6. TECHNOLOGICAL APPLICATIONS OF TEXTURE STUDIES

Invited Lectures:

Practical Aspects of Texture Control in Low Carbon Steels 1917
B. Hutchinson

Inspection and Control by On-Line Texture Measurement 1929
H.J. Kopineck

The Influence of Texture on the Magnetic Properties of CoCr Films 1941
L. Cheng-Zhang J.C. Lodder J.A. Szpunar

Effect of Strain Path Change on Anisotropy of Yield Stresses of Cubic Structure Sheet Metals 1947
J.H. Chung D.N. Lee

A Quantitative Analysis of Earing during Deep Drawing of Tin Plate Steel and Aluminum 1953
A.P. Clarke P. Van Houtte S. Saimoto

Earing Prediction From Experimental and Texture Data 1961
C.S. Da Costa Viana N.V.V. De Avila

Earing in Single Crystal Sheet Metals 1967
C.S. Da Costa Viana

The Influence of Texture and Microstructure on Corrosion-Fatigue in Ti-6Al-4V 1971
J.K. Gregory H.-G. Brokmeier

Texture Evolution during Deep Drawing in Aluminium Sheet 1979
J. Hirsch T.J. Rickert

Texture Inhomogeneities in High Tensile Strength Steels Processed with Low Temperature Controlled Rolling 1985
H. Inagaki K. Inoue
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Annealing Textures in Aluminium Deformed by Hot Plane Strain Compression

The Effect of Grain Boundary Structure on the Intergranular Corrosion of Stainless Steel
H.M. Kim  J.A. Szpunar  1997

Study on Factors Affecting r-Value of Cu Precipitation-Hardening Cold-Rolled Steel Sheet
M. Morita  Y. Hosoya  2005

Importance of Process Parameters for Texture and Properties of Microalloyed Deep Drawing Steels

Earing and Textures in Austenitic Stainless Steel Type 305
T.J. Rickert  2017

Direct Observation of the Nucleation and Growth Rates of Cube and Non-Cube Grains in Warm Plane-Strain Extruded Commercial Purity Aluminum
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