

**Poster Session I (Experimental & Atomic I)**

(June 19, 2000; 4:55 PM - 6:10 PM)

- 1.P.1 **X-ray & Neutron Scattering on Different Dislocation Ensembles,**  
R. Barabash
- 1.P.2 **Measurement of dislocation distributions by means of X-ray diffraction,**  
J.-D. Kamminga and R. Delhez
- 1.P.3 **The Density and the Character of Dislocations in Cubic and Hexagonal Polycrystals Determined by X-ray Diffraction,** J. Gubicza, I. Dragomir, P. Hanák, G. Ribárik and T. Ungár
- 1.P.4 **Using the  $g \cdot b = n$  Dot Products for Characterizing Dislocation Burgers Vectors: Comparison of LACBED, CBIM and Contour-Based Methods,** Jean Paul Morniroli and Patrick Cordier
- 1.P.5 **Effect of dislocation distribution on the high-field magnetoresistivity of pure metal single crystals,** V. V. Marchenkov, Yu. N. Gornostyrev, D. W. Hall, J. S. Brooks, H. W. Weber
- 1.P.6 **Ultrasonic dislocation dynamics in Al (0.2 at. % Zn) after elastic loading,**  
Ward Johnson
- 1.P.7 **Plastic deformation of silicon under high confining pressure,** J. Rabier, P. Cordier, J. L. Demenet, H. Garem
- 1.P.8 **Correlating Observations of Deformation Microstructures from TEM and Automated EBSD Techniques,** Mukul Kumar, Adam J. Schwartz and Wayne E. King
- 1.P.9 **Dislocation Cells in Deformed Aluminum,** John S. Vetrano, Jian Gan, Lyle E. Levine and Mohammed A. Khaleel
- 1.P.10 **Hardening in Stainless Steel after Irradiation Measured by Submicronic-Indentation,** L. Boulanger, S. Poissonnet, and Y. Serruys
- 1.P.11 **The relation of the tensile properties of irradiated metals to the microstructure,** M. Victoria, C. Bailat, N. Baluc, Y. Dai, M. I. Luppo and R. Schäublin
- 1.P.12 **Post-Irradiation Deformation in a Fe-9%Cr Alloy,** D. S. Gelles and R. Schäublin
- 1.P.13 **A microstructural analysis of Al-rich  $\alpha$ -TiAl deformed by <011] dislocations,** Fabienne Grégori and Patrick Veyssiére
- 1.P.14 **Plastic Deformation in the 7010 Al Alloy by the Development of Dislocation Cells,** G. Deshais and S. B. Newcomb
- 1.P.15 **Thermal Activation of Flow Stress Transients in Mild Steel,** H. N. Jones and C. R. Feng

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- 1.P.16 **Universal Mechanisms of Dislocation Motion and Multiplication in Solids Under Ultrasound, Creep, Impact and Shock Wave Stresses,** Valery P. Kisel
- 1.P.17 **Microscopic Mechanisms of Low-Temperature Yield Stress Anomalies in Solids,** Nelly S. Kissel and Valery P. Kisel
- 1.P.18 **The dislocation mobility in L1<sub>2</sub> Ni<sub>3</sub>Al single crystals,** S. Patu, C. B. Jiang and Q. Z. Lei
- 2.P.1 **Atomic arrangement of defects within deformed GaAs,** I. Yonenaga and D. Shindo
- 2.P.2 **Point defect interaction with dislocations in silicon,** João F. Justo, Maurice de Koning, Wei Cai, and Vasily V. Bulatov
- 2.P.3 **Study of Dislocation Properties and Deformation Behavior by Tight-Binding Molecular Dynamics Method,** K. Masuda-Jindo, N. Hamada and M. Menon
- 2.P.4 **Molecular Dynamics Simulations of ½ a<111> Screw Dislocation in Ta,** Guofeng Wang, Alejandro Strachan, Tahir Cagin and William A. Goddard III
- 2.P.5 **Complex evolution of dislocation core structure in a process of motion: model analysis with *ab-initio* parameterization,** O. N. Mryasov, Yu. N. Gornostyrev, M. van Schilfgaarde, and A. J. Freeman
- 2.P.6 **Generalized stacking fault energy surfaces and dislocation properties of aluminum,** Gang Lu, Nicholas Kioussis, Vasily V. Bulatov, and Efthimios Kaxiras
- 2.P.7 **Dislocation interactions at the atomic scale,** J. Schiøtz
- 2.P.8 **Formation of stacking faults from Misfit dislocations at the BaTiO<sub>3</sub>/SrTiO<sub>3</sub> Interface simulated by Molecular Dynamics,** Wilfried Wunderlich, Masayuki Fujimoto and Hitoshi Ohsato
- 2.P.9 **Dislocation Mobility in Two-Dimensional Lennard-Jones Material,** Nicholas Bailey, James Sethna, and Christopher Myers
- 2.P.10 **Large Scale Atomic Simulations of Dislocations in Ni,** Yue Qi, Alejandro Strachan, Tahir Cagin and William A. Goddard III
- 2.P.11 **Dislocation Motion in BCC Metals by Molecular Dynamics,** Jinpeng Chang, Wei Cai, Vasily V. Bulatov and Sidney Yip
- 2.P.12 **Emission of multiple dislocations from a crack tip and the influence of dislocation mobility,** D. Farkas and M. Duranduru
- 2.P.13 **Transition path of a lattice dislocation in a high dimensional configuration-space,** Takayoshi Suzuki and Keiichi Edagawa

**Poster Session I (Experimental & Atomic I)**

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- 2.P.14 **Multi-scale modeling of dislocations in hcp metals**, James R. Morris and Man H. Yoo
- 2.P.15 **Dislocation structure from generalized stacking fault energetics: analysis within and beyond the Peierls-Nabarro model**, Yu. N. Gornostyrev, O. N. Mryasov, and M. van Schilfgaarde
- 2.P.16 **Effect of the dislocations on the kinetics of a martensitic transition. MD simulation bcc – hcp transformation in Zr**, A. R. Kuznetsov, Yu. N. Gornostyrev, M. I. Katsnelson, and A. V. Trefilov
- 2.P.17 **Low Temperature Anomalies of Ti Plasticity Resulting from Inertial Properties of Dislocation Motion**, V. A. Moskalenko, V. D. Natsik and V. N. Kovaleva

**Poster Session II (Atomic II, Mesoscopic and Statistical)**

(June 20, 2000; 10:15 AM – 12:15 PM)

- 2.P.19 **Effect of Glissile Slip-Dislocations on the Collapse of Stacking Fault Tetrahedra in Copper**, L. Z. Sun and N. M. Ghoniem
- 2.P.20 **Tunneling of a Dislocation Through a Pinning Obstacle**, A. V. Granato, T. Kosugi, and D. McKay
- 2.P.21 **A Review of Solid Solution Hardening**, Dilip Chandrasekaran and Kjell Pettersson
- 2.P.22 **Annihilation of Interstitial Atoms to Dislocations in Neutron-irradiated Cu and Ni at High Temperature**, Y. Shimomura, I. Mukouda, K. Sugio and M Kiritani
- 2.P.23 **Simulation of Dislocation Decoration by Irradiation Induced Defects and Its Correlation to TEM**, M.-J. Caturla, R. Schaeublin and T. Diaz de la Rubia
- 2.P.24 **Atomistic Simulation of Dislocation-Defect Interactions in Cu**, Brian D. Wirth, Vasily V. Bulatov and Tomas Diaz de la Rubia
- 2.P.25 **Atomic Scale Study of the Interaction Between Dislocations and Neutron-Induced Defects in Nuclear Reactor Pressure Vessel Steels**, S. Jumel, C. Becquart, C. Domain, J. Ruste and J. C. Van-Duysen
- 2.P.26 **Defect and Deformation Microstructure in Irradiated Steels and Pure Fe**, R. Schäublin, C. Bailat, M. I. Luppo and M. Victoria
- 2.P.27 **Dislocation pinning by glissile interstitial loops in a nickel crystal: a MD study**, David Rodney, Georges Martin, Marc Fivel and Yves Bréchet
- 2.P.28 **Atomic Scale Modeling of Dislocation / Obstacle Interaction in  $\alpha$ -Fe**, P. Kizler, S. Nedelcu, S. Schmauder and N. Moldovan
- 2.P.29 **Amplitude dependent mechanical loss due to the interaction of dislocations with mobile solute atoms**, Ø. Bremnes and G. Gremaud
- 2.P.30 **Temperature Dependence of Amplitude-Dependent Internal Friction due to Simultaneous Breakaway of a Dislocation from Several Pinning Points**, Toshio Kosugi
- 2.P.31 **Non-Linear Anelasticity due to Dislocation-Solute Atom Interactions in Solid Solutions**, G. Gremaud and S. Kustov
- 3.P.1 **Self-Consistent Experimental Determination of the Dislocation Line Tension on the Basis of the Variation of Dislocation Curvatures in the Long-Range Internal Stress Field of Deformed Crystals**, Haël Mughrabi
- 3.P.2 **Structure and Internal Stresses of Cellular Networks of Dislocations**, Maria Bartelt and Darcy A. Hughes

**Poster Session II (Atomic II, Mesoscopic and Statistical)**

(June 20, 2000; 10:15 AM – 12:15 PM)

- 3.P.3 **Disorientations in Dislocation Boundaries: Formation and Spatial Correlations**, W. Pantleon and N. Hansen
- 3.P.4 **The experimental characterization of thermally activated deformation mechanisms**, J. L. Martin, J. Bonneville, B. Lo Piccolo, P. Späti and T. Kruml
- 3.P.5 **Dislocation Forest Interactions: Simulation and Prediction**, L. K. Wickham, K. W. Schwarz and J. S. Stolken
- 3.P.6 **Simulation and modeling of forest and strain hardening in BCC single crystals at low temperatures**, M. Tang, M. Fivel, B. Devincre and L. P. Kubin
- 3.P.7 **A mesoscopic approach for dislocation dynamics: Application to junctions and forest hardening**, O. Politano and J. M. Salazar
- 3.P.8 **Computer Simulations of Orowan Process Controlled Dislocation Glide in Precipitation Hardened Materials**, Volker Mohles
- 3.P.9 **Flow Localization In Irradiated Materials: A Multiscale Modeling Approach**, T. Diaz de la Rubia, H. Zbib, M. Victoria, T. Kraishi, M. Caturla and B. Wirth
- 3.P.10 **Mesoscopic Modeling of Dislocation Motion in BCC Betals**, Wei Cai, Vasily V. Bulatov, Sidney Yip and Ali S. Argon
- 3.P.11 **2D dislocation dynamics in thin metal layers**, L. Nicola, E. Van der Giessen, A. Needleman
- 3.P.12 **Static Dislocation Interactions in Thin Channels between Cuboidal Particles**, Antonin Dlouhy, Malte Probst-Hein and Gunther Eggeler
- 3.P.13 **The Treatment of Zero-Traction Boundary Condition in Three-dimensional Dislocation Dynamics using the Distributed Dislocation Method**, T. A. Kraishi and H. M. Zbib
- 3.P.14 **Dislocation Multiplication and the Early Stages of Plastic Deformation in BCC Molybdenum: A Dislocation Dynamics Numerical Simulation**, Moon Rhee, Vasily Bulatov, David Lassila, Luke Hsiung and Tomas Diaz de la Rubia
- 3.P.15 **Dislocation Dynamics using Anisotropic Elasticity: Methodology and Analysis**, James S. Stolken, Moon Rhee, Vasily V. Bulatov and Tomas Diaz de la Rubia
- 3.P.16 **Size and Boundary Effects in 3D Discrete Dislocation Dynamics**, Hassan Y. Yasin, Hussein M. Zbib, and Moe Khaleel

**Poster Session II (Atomic II, Mesoscopic and Statistical)**

(June 20, 2000; 10:15 AM – 12:15 PM)

- 3.P.17 **Non-Local Models of Dislocations in Anisotropic BCC and FCC Crystals**, Craig S. Hartley
- 3.P.18 **Simulations of Dislocations in Quantum Dots**, X. H. Liu, F. M. Ross and K. W. Schwarz
- 3.P.19 **Simulation of dislocation distributions in bcc single crystals under cyclic loading**, S. B. Biner and J. R. Morris
- 3.P.20 **Interaction between dislocations and alloying elements and its implication on crystal plasticity of aluminum alloys**, Seung-Yong Yang and Wei Tong
- 3.P.21 **Using Phase Field Micromechanics in Simulation of Dislocation Structure Evolution under Applied Stress**, Yu Wang, Yongmei Jin, Alberto M. Cuitiño and Armen G. Khachaturyan
- 4.P.1 **Propagating Portevin-LeChatelier Deformation Bands in Cu-15at%Al Polycrystals – Experiments and Theoretical Description**, A. Ziegenbein, P. Hähner and N. Neuhäuser
- 4.P.2 **Self-Organized Critical Behavior in a Deforming Metal**, Y. Shim, L. E. Levine and Robb Thomson
- 4.P.3 **Statistical model of the local pinning of dislocations due to cross-slip events**, B. V. Petukhov
- 4.P.4 **Depinning transition in dislocation systems**, Stefano Zapperi and Michael Zaiser
- 4.P.5 **Measurement of statistic properties of dislocation structures by X-ray diffraction**, F. Székely, I. Groma and J. Lendvai
- 4.P.6 **Linking different scales: discrete, self-consistent field, and stochastic dislocation dynamics**, I. Groma and B. Bakó
- 4.P.7 **Dislocation Nucleation and Patterning in Si Specimens Subjected to Bending**, K. Jimmy Hsia, Suprijadi, Peter Gumbsch and Hiroyasu Saka
- 4.P.8 **Complex dislocation dynamics in ice: experiments**, Jérôme Weiss, Jean-Robert Grasso, M.-Carmen Miguel, Alessandro Vespignani and Stefano Zapperi
- 4.P.9 **Energetics of Homogeneous Nucleation of Dislocation Loops under Stress in Perfect Crystals**, Guanshui Xu and Ali S. Argon
- 4.P.10 **Mesoscale Model of Shear Band Formation and the Brittle Ductile Transition**, Robin L. B. Selinger

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(June 20, 2000; 10:15 AM – 12:15 PM)

- 4.P.11 **Strain-Rate Dependent Mechanism of Cooperative Dislocation Generation: Application to the Brittle-Ductile Transition**, M. Khantha, V. Vitek and D. P. Pope
- 4.P.12 **A Continuum Description of Dislocations in Elastically Nonlinear Media: Martensitic Embryo Formation**, Andrew C. E. Reid and Gregory B. Olson
- 4.P.13 **A Microstructural Work Hardening Model Based on Three Internal State Variables**, M. Goerdeler and G. Gottstein
- 4.P.14 **Different levels of plastic strain incompatibilities during cyclic loading: In terms of dislocations density and distribution**, X. Feaugas and C. Gaudin
- 4.P.15 **When do 2-D dislocations form cellular structures?**, Nathan Argaman
- 4.P.16 **Kinetics of Growth and Stability of Dislocation Reorientation Bands in the  $\alpha$ -Ti Under Different Temperature-Rate Conditions**, A. R. Smirnov and V. A. Moskalenko

**Poster Session III (Strain Gradients, Interfaces and Non-Crystalline)**  
**(June 22, 2000; 1:25 PM – 2:55 PM)**

- 5.P.1 **A Thermodynamic Gradient Theory of Plasticity Based on Dislocation and Incompatibility Tensors and Discrete Dislocation Dynamics,** Kazuyuki Schizawa and Hussein M. Zbib
- 5.P.2 **The characterization of geometrically necessary dislocations in finite plasticity,** Paolo Cermelli and Morton E. Gurtin
- 5.P.3 **Continuum crystal plasticity based on dislocation theory,** Amit Acharya
- 5.P.4 **Aspects of Discrete Dislocation Dynamics in Three-Dimensional Micron-sized Components,** D. M. Weygand, L. H. Friedman, E. van der Giessen and A. Needleman
- 5.P.5 **On the constitutive behavior of ferritic / mertensitic steels,** P. Späthig, N. Baluc and M. Victoria
- 6.P.1 **Plastic Deformation of Thin Metal Foils without Dislocations and Possibility of the Operation of the Same Mechanism in Bulk,** M. Kiritani
- 6.P.2 **Dynamic observation of Al thin films plastically strained in a TEM,** M. Legros, G. Dehm, R. M. Keller, E. Arzt, K. J. Hemker and S. Suresh
- 6.P.3 **In-situ transmission electron microscopy study of thermal-stress induced dislocations in a thin Cu film constrained by a Si substrate,** Gerhard Dehm and Eduard Arzt
- 6.P.4 **Critical Epitaxial Film Thickness for Forming Interface Dislocations,** Sanboh Lee, Shing-Dar Wang and Chun-Hway Hsueh
- 6.P.5 **Plasticity of GaAs compliant substrates,** G. Patriarche and E. Le Bourhis
- 6.P.6 **Dislocation-grain boundary interaction: Incorporation processes of extrinsic dislocations in singular, vicinal and general grain boundaries in Ni,** S. Poulat, B. Décamps, L. Priester and J. Thibault
- 6.P.7 **Using Dislocation Structure Characterization to Model Polycrystal Deformation,** Grethe Winther
- 6.P.8 **Planer defects of Al simulated by bond order potentials,** S. R. Nishitani, S. Ohgushi and H. Adachi
- 6.P.9 **Description and Modeling of the Microstructure Evolution under Strain-Path Changes in Low-Carbon IF Steels,** E. V. Nesterova, B. Bacroix, and C. Teodosiu
- 6.P.10 **Interaction processes between dislocations and particles in the ODS nickel-base superalloy MA 754 studied by means of in-situ straining in an HVEM,** D. Häussler, B. Reppich, M. Bartsch and U. Messerschmidt

**Poster Session III (Strain Gradients, Interfaces and Non-Crystalline)**  
**(June 22, 2000; 1:25 PM – 2:55 PM)**

- 6.P.11 **Simulation of X-Ray Diffraction Line Broadening due to Dislocations in a Model Composite Material**, T. C. Bor, H. M. M. Cleveringa, R. Delhez and E. van der Giessen
- 6.P.12 **Deformation Mechanism in High Strength Cu/Nb Nanocomposites**, L. Thilly, O. Ludwig, M. Véron, F. Lecouturier
- 6.P.13 **Cellular Dislocations: Experiment and Modeling**, Michael Zelin, Stephane Guillard and Amiya Mukherjee
- 6.P.14 **Boundary Element Method with Internal Stresses for the Investigation of Dislocation-Boundary Interaction**, X. J. Xin, K. Kollu, and R. H. Wagoner
- 6.P.15 **Discrete dislocation modeling of plasticity around secondary cracks**, S. Noronha, A. J. Wilkinson and S. G. Roberts
- 6.P.16 **Crack growth under cyclic loading: a discrete dislocation analysis**, H. H. M. Cleveringa, E. van der Giessen and A. Needleman
- 6.P.17 **Crack Tip-Dislocation Interactions in the Presence of Hydrogen**, A. Taha and P. Sofronis
- 6.P.18 **Indirect Estimating of Contribution of Grain Boundary Dislocations to Plastic Deformation of Nanostructural Titanium from the SD-Effect of the Yield Stress**, E. D. Tabachnikova, V. Z. Bengus, V. V. Stolyarov, G. I. Raab, and R. Z. Valiev
- 7.P.1 **Extending of dislocation notions to amorphous state of solids**, V. Z. Bengus and E. D. Tabachnikova
- 7.P.2 **Plastic deformation of decagonal Al-Ni-Co single-quasicrystals**, P. Schall, M. Feuerbacher and K. Urban
- 7.P.3 **Cluster-impeded dislocation motion in icosahedral quasicrystals**, Gunther D. Schaaf, Johannes Roth and Hans-Rainer Trebin
- 7.P.4 **Dislocations and Shear Strength of Model Quasiperiodic Lattice**, Ryuji Tamura, Keiichi Edagawa and Shin Takeuchi