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Thermodynamic Analysis of the Fe-Mn-P Ternary Phase Diagram by Combining the First-Principles and CALPHAD Methods	T. Tokunaga, N. Hanaya, H. Ohtani and M. Hasebe	1899
3-D FE Simulation and Analysis on Radial-Axial Large Ring Rolling	L.B. Pan, L. Hua and J. Lan	1903
Ab Initio Lattice Dynamics and Thermodynamics of MgS and Related II-VI Semiconductors in Zincblende Structure	S.Q. Wang	1907
Numerical Simulation and Optimisation of Sheet Metal Forming for Auto-Body Panel Using AutoForm Software	X.Z. Wang, S.H. Masood and M. Dingle	1911
Stacking Fault Energy of Cu-Ga Alloys from First Principles	S. Fujita, T. Uesugi, Y. Takigawa and K. Higashi	1915
Modeling and Experimental Observation of the Plastic Anisotropy and Damage of CP-Ti during Multi-Pass ECAE	H. Jiang, Z.G. Fan and C.Y. Xie	1919
Point Defects in L1₀ Phase FePt Alloy: A First Principle Study	Y. Sui, Z.Y. Chen, X.L. Shu and T.M. Wang	1923
Cosmic Micromechanics Connection with Irreversible Deformation Processes in Spatially Extended Crystalline Systems	J.D. Muñoz-Andrade	1927
The Thermal, Mechanical and Electronic Properties of Nanoscale Materials: Ab Initio Study	K. Masuda-Jindo, V. Van Hung and M. Menon	1931
Phase Field Calculations with CVM Free Energy within Square Approximation	T. Mohri, N. Fujihashi and Y. Chen	1935
The Study of Undercooling of Homogeneous Nucleation for Metallic Melting	C. Huang, B. Song and P. Zhao	1941
Study on the Wrinkling and Edge Irregularity during Bending of a Roll-Formed Plate	J.J. Sheu, M.Y. Huang and C.W. Liu	1945
Optimization of Bending Process of Large Marine Crankthrow by Computer Simulation	M.Y. Sun, S.P. Lu, D.Z. Li and Y.Y. Li	1949
Physical Modeling on Recrystallization of Austenite in Steels in Thermo-Mechanical Processing	X.T. Wang, Z.L. Yu, T. Siwecki, G. Engberg and Z.Q. Sun	1953
Nonlinear Steady Temperature Fields in Non—Homogeneous Materials	Y. Dai, Q. Sun, W. Tan and C.Q. Sun	1957
Mathematical Simulation of Billet Profile during Spray Forming Process	S.B. Ren, J.F. Fan, H.R. Le and S.L. Zhao	1961
The Effect of Solidification Models on the Prediction Results of the Temperature Change of the Aluminum Cylinder Head Estimated by FDM Solidification Analysis	H. Onda, K. Sakurai, T. Masuta, K. Oikawa, K. Anzai, W. Kasprzak and J. Sokolowski	1967
First Principles Study of Point Defects in Uranium Dioxide	Y. Chen, M. Iwasawa, Y. Kaneta, T. Ohnuma, H.Y. Geng and M. Kinoshita	1971
Modeling of Contact Pressure in Sheet Metal Forming	M.P. Pereira, W.Y. Yan and B.F. Rolfe	1975
Stability of Crystallographic Orientations in Equal Channel Angular Extrusion of HCP materials: Application to Texture Analysis in Titanium	S.Y. Li	1979
Atomic Simulations on the Grain Subdivision of a Crystalline Metal	T. Shimokawa, T. Kinari and S. Shintaku	1983
Heat and Mass Transfer in the Process of EB Penetration	J.E. Ho and C.Y. Ho	1987
Numerical Modelling of Spray Formed Grain Size Evolution	J.W. Mi and P.S. Grant	1991

Development and Application of the Finite Element Analysis Program of the Stress-Based Forming Limit Criterion for Sheet Metal Forming

M.H. Chen, J.H. Li, L. Gao, D.W. Zuo and M. Wang

1995

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2005

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2009

Study of the Early Stages of Recrystallization in a Cold Rolled ELC Steel Using FIB-EBSD Tomography

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