Poster Session 17:10-19:30 @ Hall 1F

Dislocation & Deformation mechanism

【P01】 The interaction between dislocations and precipitates in the AA2050 aluminium alloy: TsaiFu Chung[1], Yo-Lun Yang[2], Chien-Nan Hsiao[3], Wei-Chih Li[1], **Jer-Ren Yang1, Takahito Ohmura4; 1Department of** Materials Science and Engineering, National, Taiwan University, [2]Department of Mechanical Engineering, Imperial College London, [3]Instrument Technology Research Center, National Applied Research Lab, [4]National Institute for Materials Science

【P02】Effect of Y addition on the deformation behaviour of Mg micro-pillars: Jing Wu[1], Shanshan Si[1], Kosuke Takagi[2], Tian Li[1], Yoji Mine[2], Kazuki Takashima[2], Yu Lung Chiu[1]; [1]University of Birmingham, [2]Kumamoto University

【P03】Micro-shear deformation behaviour of long-period stacking ordered phase single crystals in $Mg_{85}Zn_6Y_9$ alloy: Kosuke Takagi[1], Kohei Kyuma[1], Yoji Mine[1], Jing Wu[2], Yu Lung Chiu[2], Kazuki Takashima[1]; [1]Department of Materials Science and Engineering, Kumamoto University, [2]School of Metallurgy and Materials, University of Birmingham

【P04】Interactions between dislocations and grain boundary investigated by TEM and nanoindentation in Si steel: Ya-Ling Chang, Seiichiro II, Takahito Ohmura; Research Center for Structural Materials, National Institute for Materials Science

【P05】 X-ray topography of dislocations by indentation of protein crystals: Ryo Suzuki[1], Chi Chika Shigemoto[1], Hidenobu Murata[1], Masaru Tachibana[1], Kenichi Kojima[2]; [1]Graduate School of Nanobioscience, Yokohama City University, [2]Department of Education, Yokohama Soei University

【P06】Effect of α/θ interface structure on the initiation of plasticity: Yanxu Wang[1,2], Yo Tomota[2], Takahito Ohmura[1,2]; [1]Kyushu University, [2]National Institute for Materials Science

【P07】 Local deformation behavior of half-Heusler ZrNiSn and Heusler ZrNi2Sn: Yusuke Tsubono[1,2], Yoshisato Kimura[1], Takahito Ohmura[3], [1]Department of Materials Science and Engineering, Tokyo Institute of Technology, [2]Graduate student, [3] Research Center for Structural Materials, National Institute for Materials Science

【 P08 】 Influence of Si content on nanoindentation behavior of Si added IF steel: Takuya Suzuki[1], Nozomu Adachi[1], Yoshikazu Todaka[1], Seiichiro II[2], Takahito Ohmura[2]; [1]Department of Mechanical Engineering, Toyohashi University of Technology, [2] Research Center for Structural Materials, National Institute for Materials Science

【P09】Evaluation of mechanical properties of Mo_5SiB_2 via micropillar compression and nanoindentation: Takuya Yoshida[1], Sojiro Uemura[1], Kyosuke Yoshimi[2], Sadahiro Tsurekawa[3]; [1]Department of Materials Science and Engineering, Graduate School of Science and Technology, Kumamoto University, [2]Department of Metallurgy, Materials Science and Materials Processing, Graduate School of Engineering, Tohoku University, [3]Division of Materials Science, Faculty of Advanced Science and Technology, Kumamoto University

【P10】Identification of operative slip systems in brittle intermetallics by nanoindentation method: Nobuaki Sekido[1], Yusuke Wada[1], Takahito Ohmura[2], Seiji Miura[3], Kyosuke Yoshimi[1]; [1]Department of Materials Science and Engineering, Tohoku University, [2]Center for Structural Materials, National Institute for

Materials Science, [3]Division of Materials Science and Engineering, Faculty of Engineering, Hokkaido University

【P11】 The effect of grain size on plasticity initiation during nanoindentation in interstitial free steel: Hongxing Li[1], Si Gao[2], Ruzic Jovana[1], Nobuhiro Tsuji[2], Takahito Ohmura[1]; [1]Research Center for Structural Materials, National Institute for Materials Science, [2]Department of Materials Science and Engineering, Kyoto University

【P12】Real time analysis of dislocation motion and mechanical response in pure aluminum bicrystal using *in-situ* deformation in TEM: Takero Enami[1], Seiichiro II[2], Takahito Ohmura[2]; Sadahiro Tsurekawa[3]; [1]Department of Materials Science and Engineering, Graduate School of Science and Technology, Kumamoto University, [2]Research Center for Structural Materials, National Institute for Materials Science, [3]Division of Materials Science, Faculty of Advanced Science and Technology, Kumamoto University

【 P13 】 Indentation-induced intermittent plasticity associated with collective motion of dislocation in BCC metals: Takahito Ohmura[1,2], Takuya Suzuki[1]; [1]Research Center for Structural Materials, National Institute for Materials Science, [2]Kyushu University

【 P14 】 Mechanical properties of ultra-fine grained Fe-Ni-Al-C alloy containing intermetallic compounds: Si Gao[1], Yu Bai[1], Wenqi Mao[1], Akinobu Shibata[1,2], Nobuhiro Tsuji[1,2]; [1]Department of Materials Science and Engineering, Kyoto University, [2]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University

【 P15 】 Application of modified optical indentation microscopy as new *in situ* indentation method: Takahiro Mineta[1], Seiji Miura[2], Kazuhiko Oka[1], Tatsuya Miyajima[3]; [1]Department of Mechanical Science and Engineering, Graduate School of Science and Technology, Hirosaki University, [2]Division of Materials Science and Engineering, Faculty of Engineering, Hokkaido University, [3]National Institute of Advanced Industrial Science and Technology (AIST)

Modeling & Simulation

【 P16 】 Understanding nanoindentation in composites - simulations and experiments for cemented carbide binders: David Linder[1], Jonas Faleskog[2], Martin Walbrühl[1], John Ågren[1], Annika Borgenstam[1]; [1]Department of Materials Science, KTH Royal Institute of Technology, [2]Department of Solid Mechanics, KTH Royal Institute of Technology

【 P17 】 Finite element simulation of nano-indentation using elastoplastic constitutive model base on dislocation density: Ikumu Watanabe, Research Center for Structural Materials, National Institute for Materials Science

【 P18 】 Three-dimensional microstructural observa-tion around nano indent on dual phase steels: Reon Ando[1], Takashi Matsuno[1,2,3], Norio Yamashita[2], Hideo Yokota[2], Ikumu Watanabe[3], Takahito Ohmura[3]; [1]Department of Mechanical and Aerospace Engineering, Tottori University, [2]Center for Advanced Photonics, Riken, [3] Research Center for Structural Materials, National Institute for Materials Science

【 P19 】 Inverse estimation of elasto-plastic properties of alloys from single indentation test with finite element method: Kenta Goto, Ikumu Watanabe, Takahito Ohmura; Research Center for Structural Materials, National Institute for Materials Science

【P20】 Effect of porosity on the mechanical properties of sintered porous Ag: micro-compression experiments and simulations: Chuantong Chen[1], Chun Pei[2], Shijo Nagao[1], Katsuaki Suganuma[1]; [1]The Institute of Scientific and Industrial Research, Osaka University, [2]The School of Reliability and Systems Engineering, Beihang University

【P21】 Effect of apex angle on the restitution coefficient of hammer with pyramidal indenter: Tomohiro Inoue, Daichi Urakawa, Ryo Ichikawa, Kenji Matsuda; Department of Mechanical and Control Engineering, Kyushu Institute of Technology

【P22】 Application of continuum mechanics-based modelling into nanoporous metal-based lithium-ion batteries: Hoon-Hwe Cho[1], Matthew P. B. Glazer[2], David C. Dunand[3]; [1]Department of Materials Science and Engineering, Hanbat National University, [2]Materials and Corrosion Engineering Practice, Exponent, Inc., [3]Department of Materials Science and Engineering, Northwestern University

【 P23 】 Micro-photoelastic evaluation of indentation-induced stress in glass: Keisuke Asai[1], S. Yoshida[1], A. Yamada[1], J. Matsuoka[1], A. Errapart[2], C.R. Kurkjian[3]; [1]University of Shiga Prefecture, [2]Trenz Electronic GmbH, [3]Rutgers University

【 P24 】 Molecular dynamics study on nanoindentation of iron with a planar defect: Masato Wakeda; Research Center for Structural Materials, National Institute for Materials Science

【P25】 A finite element method and neural networks comparison to determine material proprieties using berkovich indentation test: Marcus V. L. Pazini, Oscar G. Suarez, María C. M. Farias; Centro de Ciência Exatas e da Tecnologia, Universidade de Caxias do Sul

【 P26 】 Determination of tensile-like elastoplastic properties in AA2198 using nano-instrumented indentation test: Giovanni Maizza[1], Renato Pero[2], Frediano De Marco[3], Roberto Montanari[2], Takahito Ohmura[4]; [1]Department of Applied Science and Technology (DISAT), Politecnico di Torino, [2]Department of Industrial Engineering, Università di Roma "Tor

Vergata", [3]National Interuniversity Consortium of Materials Science and Technolog (INSTM), [4]Research Center for Structural Materials, National Institute for Materials Science

【 P27 】 Boundary layer structures in indentation studies of aluminium: Tatsuya Sugihara[1], Anirudh Udupa[2], Koushik Viswanathan[2]; [1]Department of Mechanical Engineering, Osaka University, [2]School of Industrial Engineering, Purdue University

Characterization & Local property

【 P28 】 Nanostructure in quenched Fe-C martensite: Dehai Ping[1], Xuan Liu[1,2], Xing Lu[2], Takahito Ohmura[1], Masato Ohnuma[3]; [1]Research Center for Structural Materials, National Institute for Materials Science, [2]School of Materials Science and Engineering, Dalian Jiaotong University, [3]Faculty of Engineering, Hokkaido University

【 P29 】 Microstructural characterization of water-quenched high carbon Fe-C alloys: Xuan Liu[1,2], Xing Lu[2], Dehai Ping[1], Takahito Ohmura[1], Masato Ohnuma[3]; [1]Research Center for Structural Materials, National Institute for Materials Science, [2]School of Materials Science and Engineering, Dalian Jiaotong University, [3]Faculty of Engineering, Hokkaido University

【P30】The measurement of elastic modulus of high-elastic single crystals by nanoindentation: Yukimi Tanaka, Yutaka Seino[1], Koichiro Hattori; National Metrology Institute of Japan, National Institute of Advanced Industrial Science and Technology (NMIJ-AIST)

【P31】Effect of heat and hydrogen flux on the nano-mechanical properties of tungsten: Yeonju Oh, Nojun Kwak, Heung Nam Han; Department of Materials Science and Engineering & Research Institute of Advanced Materials, Seoul National University

【P32】Size dependence of strength of single-crystal pure aluminum micropillars: Naoki Takata[1], Soichiro Takeyasu[2], Asuka Suzuki[1], Makoto Kobashi[1]; [1]Department of Materials Process Engineering, Graduate School of Engineering, Nagoya University, Graduate Student, Department of Materials Process Engineering, [2]Graduate School of Engineering, Nagoya University

【P33】Multi-point nano-indentation analyses on multi-phase alloys for the characterization of mechanical properties of phases: Seiji Miura[1], Genki Fukagawa[2], Ken-ichi Ikeda[1]; [1]Division of Material Science and Engineering, Hokkaido University, Graduate student, [2]Graduate School of Materials Science and Engineering, Hokkaido University

【 P34 】 Mechanical behavior of individual austenite grain in quenched-tempered steel: Tinghui Man[1], Takahito Ohmura[1,2], Yo Tomota[2]; [1]Department of Materials Physics and Chemistry, Kyushu University, [2]Research Center for Structural Materials, National Institute for Materials Science

【P35】 Epsilon-martensite variant structure developed beneath nanoindentation on a Fe-Mn-Si shape memory alloy: Takahiro Sawaguchi, Kaoru Sekido, Takahito Ohmura; Research Center for Structural Materials, National Institute for Materials Science

【P36】Multi-scale study of A516 dual-phase steel elastoplastic behavior using nano- and micro-indentation: Cécile Escaich[1,2], Gabrielle Turcot[1,2], Daniel Paquet[2], Myriam Brochu[1], Sylvain Turenne[1], Martin Lévesque[1]; [1]Department of Mechanical Engineering, École Polytechnique de Montréal, [2]Hydro-Quebec Research Institute

【P37】 Experimental simulation of fracture and deformation of fine ceramic particles by in situ compression test for aerosol deposition process: Shota Kuroyanagi[1,3], Atsushi Yumoto[2], Jun Akedo[3], Kentaro Shinoda[3]; [1]Department of Materials Science and Engineering, Graduate School of Engineering and Science, Shibaura Institute of Technology, [2]Department of Materials Science and Engineering, Shibaura Institute of Technology, [3]Advanced Coating Technology

Research Center, National Institute of Advanced Industrial Science and Technology (AIST)

【P38】 Evaluation of hydrogen influence on plastic deformation behavior of ferritic low alloy steels by the nano-indentation method: Nobuo Nagashima, Masao Hayakawa; Research Center for Structural Materials, National Institute for Materials Science

【P39】 Nanoindentation characterization in interstitial-free steel: Ling Zhang[1,2], Xiaojuan Jiang[1], Guilin Wu[1], Xiaoxu Huang[1]; [1]College of Materials Science and Engineering, Chongqing University, [2]Electron Microscopy Center of Chongqing University, Chongqing University

【 P40 】 Hardness distribution of heterogeneous-nano structured stainless steels fabricated by heavily cold-rolling: Shuhei Kobayashi[1], Chihiro Watanabe[1], Yoshiteru Aoyagi[2], Yoshikazu Todaka[3], Masakazu Kobayashi[3], Hiromi Miura[3], Takahito Omura[4]; [1]Division of Mechanical Engineering, Kanazawa University, [2]Department of Finemechanics, Tohoku University, [3]Department of Mechanical Engineering, Toyohashi University of Technology, [4]National Institute for Materials Science

【 P41 】 Nano-indentation study of HCP martensite developed in a high-Mn ferrous alloy; Ilya Nikulin, Eri Nakagawa, Takahiro Sawaguchi, Takahito Ohmura; Research Center for Structural Materials, National Institute for Materials Science

【 P42 】 Study on hardness and thermal expansion properties with grain growth in electroformed nano-crystalline Fe-52wt%Ni alloy: Minsu Lee, Hyeonjin Eom, Tai Hong Yim; Surface R&D group, Korea Institute of Industrial Technology

【 P43 】 Ductile to brittle temperature transition of individual phases in 1018 steel: Eric Hintsala, Douglas Stauffer; Bruker Nano, Inc.

【P44】Correlation between dispersion of VC interphase precipitation and local hardness of ferrite in low carbon steels: Yongjie Zhang[1], Goro Miyamoto[1], Takahito Ohmura[2], Tadashi Furuhara[1]; [1]Institute for Materials Research, [2]Research Center for Structural Materials, National Institute for Materials Science

【P45】Compression tests for submicrometer spherical particles by SEM indenter: Naoto Koshizaki[1], Mitsuhiko Kondo[1], Nobuyuki Shishido[2], Shoji Kamiya[3], Yoshie Ishikawa[4]; [1]Graduate School of Engineering, Hokkaido University, [2]Green Electronics Research Institute, Kitakyushu, [3]Nagoya Institute of Technology, [4]Nanomaterials Research Institute, National Institute of Advanced Industrial Science and Technology (AIST)

【P46】Elastic modulus evaluation of polymer materials at microscopic area with indentation method: Akihiro Koike; NC Project, Corporate R&D Dept., DIC Corporation

【P47】 Dynamic viscoelastic response of Ag and In doped chalcogenide glasses: Abhishek Chaturvedi[1], G.Sreevidya Varma[2], Sundarrajan Asokan[2], Upadrasta Ramamurty[1]; [1]Department of Materials Engineering, Indian Institute of Science, [2]Department of Instrumentation and Applied Physics, Indian Institute of Science

【 P48 】 Spatial heterogeneity of elastic behavior in amorphous alloys: Koudai Takano[1], Masato Ohnuma[1], Giselher Herzer[2], Takahito Ohmura[3]; [1]Fucluty of Engineering, Hokkaido University, [2]Vacuumschmelze GmbH & Co. KG, [3]Research Center for Structural Materials, National Institute for Materials Science

【 P49 】 Evaluation of surface oxide film property of nuclear structural materials for estimation of stress corrosion cracking initiation susceptibility: Min-Jae Choi, Dong-Jin Kim; Nuclear Materials Division, Kore Atomic Energy Research Institute

【 P50 】 Evaluation of thin-film interfacial properties using single nanoindentation testing: Jinwoo Lee[1], Sungki Choi[2], Dongil Kwon[1]; [1]Department of Materials Science and Engineering, Seoul National University, [2]NanoIs

High-temperature & Applications

【P51】 Effect of interstitial oxygen on the Vickers and Rockwell hardness of pure titanium prepared by vacuum arc melting: Jung-Min Oh, Jae-Won Lim; Division of Advanced Materials Engineering and Research Center for Advanced Materials Development, College of Engineering, Chonbuk National University

【P52】Effect of oxygen on the micro-Vickers hardness of bulk titanium prepared by deoxidation process: Taeheon Kim, Jung-Min Oh, Jae-Won Lim; Division of Advanced Materials Engineering and Research Center for Advanced Materials Development, College of Engineering, Chonbuk National University

【P53】 A quantitative measurement of interfacial adhesion for thermal barrier coatings by cross-sectional indentation method: Liberty T. Wu[1], Rudder T. Wu[2], Ping Xiao[3], Toshio Osada[1], Xiaofeng Zhao[4]; [1]Research Center for Structural Materials, National Institute for Materials Science, [2]International Center for Materials Nanoarchitectonics, National Institute for Materials Science, [3]The School of Materials, The University of Manchester, [4]School of Materials Science and Engineering, Shanghai Jiao Tong University

【P54】Effect of reduction oxygen on hardness of Ti and Ti-6Al-4V alloy prepared by hydrogen plasma arc melting: Nohwoun Rim, Jung-Min Oh, Jae-Won Lim; Division of Advanced Materials Engineering and Research Center for Advanced Materials Development, College of Engineering, Chonbuk National University

【P55】Analysis of deformation behavior of β titanium alloys by nanoindentation: Takuya Kimura[1], Yuki Shibayama[1], Kohei Onose[1], Shigeru Kuramoto[2] Eri Nakagawa[3], Takahito Ohmura[3,4]; [1]Graduate School, Ibaraki University, [2]Ibaraki University, [3]Research Center for Structural Materials, National Institute for Materials Science, [4]Kyushu University

【P56】 Influence of relative nano-hardness between primary α grains and transformed β areas on the mechanical properties of Ti-6Al-4V alloy with bimodal microstructures: Yan Chong[1], Tilak Bhattacharjee[1,2], Akinobu Shibata[1,2], Nobuhiro Tsuji[1,2]; [1]Department of Materials Science and Engineering, Kyoto University, [2]Element Strategy Initiative for Structural Materials (ESISM), Kyoto University

【P57】 Effect of metastable $L1_2$ Co_3Nb on precipitation of intermetallic phases from Nb-supersaturated Co solid solution in Co-rich Co-Nb Binary Alloys: Konatsu Yamada[1], Toshiaki Horiuchi[1,2], Frank Stein[3], Seiji Miura[4]; [1]Faculty of Engineering, Hokkaido University of Science, [2]Laboratory of Advanced Materials for Cold Region (LAM), Hokkaido University of Science, [3]Max-Planck-Institut für Eisenforschung GmbH, [4]Faculty of Engineering, Hokkaido University

【P58】 Influence of hydrogen on nanomechanical behavior in a CoCrFeMnNi high-entropy alloy: Guanghui Yang[1], Yakai Zhao[2], Dong-Hyun Lee[1], Woo-Jin Kim[1], Jeong-Min Park[1], Jin-Yoo Suh[3], Jae-il Jang[1]; [1]Division of Materials Science and Engineering, Hanyang University, [2]School of Materials Science and Engineering, Beijing Institute of Technology, [3]High Temperature Energy Materials Research Center, Korea Institute of Science and Technology

【 P59 】 Investigation of the effect of γ-irradiation on the mechanical properties of COP by nanoindentation method: Masaaki Takeda, Tsuyoshi Kato, Yuichi Muraji, Ryo Endoh, Yoshihiro Takai; Material characterization laboratories, Toray Research Center Inc.

【P60】The effect of interstitial C atom on local deformation behavior of Ni_3AlC_{1-x} and Co_3AlC_{1-x}: So Murasue[1,2], Taichi Okada[1,2], Yoshisato Kimura[1], Takahito Ohmura[3]; [1]Department of Materials Science and Engineering, School of Material and Chemical Technology, Tokyo Institute of Technology, [2]Graduate Student, [3]Research Center for Structural Materials, National Institute for Materials Science

【 P61 】 Automated ball indentation in the process of the evaluation of irradiated nuclear power plants components materials degradation: Radim Kopřiva, Miloš Kytka, Petra Petelová, Ivana Eliášová; ÚJVŘež, a. s., Integrity and Technical Engineering Division, Mechanical Testing Department

【P62】Evaluation of temperature dependent mechanical behavior of metals using high temperature nanoindentation: Jovana Ruzic, Ikumu Watanabe, Takahito Ohmura; Research Center for Structural Materials, National Institute for Materials Science

【 P63 】 Estimating degradation of high-temperature-component materials in gas turbine using instrumented indentation test: Jongho Won, Kyungyul Lee, Ohmin Kwon, Woojoo Kim, Seunghun Choi, Dongil Kwon; Department of Materials Science and Engineering, Seoul National University

【 P64 】 Toward a design of Ni-Co base superalloy: quantitative analysis of contributing factors to strength: Toshio Osada, Yuefeng Gu, Nobuo Nagashima, Yong Yuan, Yokokawa Tadaharu, Hiroshi Harada; National Institute for Materials Science

【P65】 Unique nanoscale lamellar structure formation and its effect on nanoindentation hardness in γ' precipitated Ni-base ODS superalloy: Mai Yamashita[1], Shigeharu Ukai[2], Naoko. H. Oono[2], Shigenari Hayashi[2]; Azusa Konno[1], Kouki Nakamura[1], S.M.S. Aghamiri[2]; [1]Graduate School of Engineering, Division of Material Science and Engineering, Hokkaido University, [2]Faculty of Engineering, Division of Material Science and Engineering, Hokkaido University