2021 International Metallurgical Processes Workshop for Young Scholars (IMPROWYS 2021)

International Metallurgical Processes Workshop for Young Scholars

July 26-28, 2021

Shenyang, China

Organized by

The Chinese Society for Metals

Hosted by

Northeastern University

University of Leicester

Sponsored by

National Natural Science Foundation of China (NSFC)

China Association for Science and Technology (CAST)

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Organizing Committee

Conference Chairmen:

Cong Wang (Northeastern University)

Bo Chen (University of Leicester)

Secretaries:

Ming Zhong (Northeastern University)

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Conference Program

Date	Time	Event	Location
July 26, 2021	08:00-22:00	Registration	Hotel Lobby (1F)
	17:30-20:00	Buffet	Hotel Restaurant (1F)
July 27, 2021	09:00-12:00	Tour	Shenyang City
	12:00-13:00	Buffet	Hotel Restaurant (1F)
	16:00-16:35	Opening Ceremony	Juxian Hall (2F)
	16:35-16:50	Group Photo	Hotel Lobby (1F)
	16:50-20:00	Session A	Room 401 (4F)
	16:50-20:00	Session B	Room 402 (4F)
	16:50-20:00	Session C	Room 404 (4F)
	16:50-20:00	Session D	Room 407 (4F)
	20:00-21:00	Banquet	Juxian Hall (2F)
July 28, 2021	09:00-12:00	Tour	Shenyang City
	12:00-13:00	Buffet	Hotel Restaurant (1F)
	16:00-20:00	Session E	Room 401 (4F)
	16:00-20:00	Session F	Room 402 (4F)
	16:00-20:00	Session G	Room 404 (4F)
	16:00-20:00	Session H	Room 407 (4F)
	20:00-21:00	Buffet	Hotel Restaurant (1F)

July 27, 2021 Opening Ceremony Juxian Hall			
	Time	**Event**	**Name**
1	16:00-16:05	Opening Remarks by the Chairmen of IMPROWYS 2021	Bo Chen, Cong Wang
2	16:05-16:15	Address by the Vice President of Northeastern University	Lixin Tang
3	16:15-16:25	Address by the Pro Vice Chancellor of University of Leicester	Philip Withers
4	16:25-16:35	Address by the Vice President & Secretary-General of The Chinese Society for Metals	Xinjiang Wang
5	16:35-16:50	Group Photo	All members

July 27, 2021 Room 401 Session A: Steelmaking, Refining & Casting Session Chair: Wanlin Wang, Peiyuan Ni						
	Time	**Name**	**Country**	**Presentation Title**	**Institution**	**Attendance**
1	16:50-17:15	Wanlin Wang	China	Key issues in the initial solidification of molten steel	Central South University	In person
2	17:15-17:40	Siddhartha Misra	India	Study of process parameters affecting steel cleanliness in ultra low carbon steel grades	Tatasteel	Online
3	17:40-18:05	Youn-Bae Kang	Korea	Analysis of soluble O content in ultra low C Al-killed steel using inert gas fusion infrared absorption analyzer	POSTECH	Online
	18:05-18:20	Tea Break				
4	18:20-18:45	Peiyuan Ni	China	Dynamic change of steel/slag interfacial tension induced by chemical reactions	Northeastern University	In person
5	18:45-19:10	Ashok Kamaraj	India	Influence of slag carryover on the evolution of non-metallic inclusion in 3.2wt% Si steel	CSIR National Metallurgical Laboratory Jamshedpur	Online
6	19:10-19:35	Chao Chen	China	On the motion-melting-mixing of scrap under stationery and gas-stirring conditions-A cold model study	Taiyuan University of Technology	In person
7	19:35-20:00	Kinnor Chattopadhyay	Canada	State of the art imaging techniques for physical modelling of metal casting and metal atomization processes	University of Toronto	Online

July 27, 2021 Room 402 Session B: Recycling & Steelmaking Session Chair: Zuotai Zhang, Min Jiang						
	Time	**Name**	**Country**	**Presentation Title**	**Institution**	**Attendance**
1	16:50-17:15	Zuotai Zhang	China	Preparation of hierarchically structured calcium silicate hydrate by chemical activation of steel-making slags	Southern University of Science and Technology	In person
2	17:15-17:40	Akbar Rhamdhani	Australia	Separation of Li and Co from cathode materials using aluminothermic reduction as an alternative route for lithium-ion batteries recycling	Swinburne University of Technology	Online
3	17:40-18:05	Ying Ren	China	The dissolution of SiO_2 particles in CaO-Al_2O_3-SiO_2 slags observed using confocal scanning laser microscope	University of Science and Technology Beijing	In person
	18:05-18:20	Tea Break				
4	18:20-18:45	Min Jiang	China	Control of non-metallic inclusions in high quality saw wires	University of Science and Technology Beijing	In person
5	18:45-19:10	Neslihan Dogan	Canada	Inclusion characteristics in medium and high manganese steels	McMaster University	Online
6	19:10-19:35	Xu Gao	China	Transformation of alumina inclusions by the reactions between molten steel and refractory/refining slag	Central South University	In person
7	19:35-20:00	Yan Ma	Germany	Influence of microstructure and atomic-scale chemistry on the direct reduction of iron ore with hydrogen	Max-Planck-Institut für Eisenforschung GmbH	Online

July 27, 2021 Room 404 Session C: Additive Manufacturing Session Chair: Bo Chen, Yafeng Yang						
	Time	**Name**	**Country**	**Presentation Title**	**Institution**	**Attendance**
1	16:50-17:15	Bo Chen	UK	Recent progress in the gamma titanium aluminide processed by selective electron beam melting	University of Leicester	In person
2	17:15-17:40	Chu Lun Alex Leung	UK	Probing laser powder bed fusion additive manufacturing using x-ray imaging and process replicators	University College London	Online
3	17:40-18:05	Yingtao Tian	UK	Laser polishing of powder based additive manufactured components: surface smoothing and impact to subsurface material	Lancaster University	Online
	18:05-18:20	Tea Break				
4	18:20-18:45	Wei Xu	China	Computational design of novel Ni superalloys with low crack susceptibility for additive manufacturing	Northeastern University	In person
5	18:45-19:10	Minh-Son Pham	UK	Solidification microstructure and solidification cracking in metal additive manufacturing	Imperial College London	Online
6	19:10-19:35	Yafeng Yang	China	A general coating technology of powder to fabricate high-quality metal matrix composite powders for 3D printing	Institute of Process Engineering, Chinese Academy of Sciences	In person
7	19:35-20:00	Wei Xiong	USA	Additive manufacturing as a tool for materials design and process optimization	University of Pittsburgh	Online

July 27, 2021 Room 407 Session D: Steels Session Chair: Mingyue Sun, Hongliang Yi						
	Time	**Name**	**Country**	**Presentation Title**	**Institution**	**Attendance**
1	16:50-17:15	Mingyue Sun	China	Ultrafine-grained dual-phase maraging steel applied for heavy forgings of cryogenic engineering	Institute of Metal Research, Chinese Academy of Sciences	In person
2	17:15-17:40	Mingxin Huang	China	Strong, ductile, tough deformed partitioned steel	The University of Hong Kong	Online
3	17:40-18:05	Qian Yu	China	Effect of key alloy elements on the mechanical properties of alloyed metals	Zhejiang University	Online
	18:05-18:20	Tea Break				
4	18:20-18:45	Hongliang Yi	China	Al-Si coated press hardened steel with improved bendability	Northeastern University	In person
5	18:45-19:10	Yiqiang Wang	UK	The role of Mo on the interphase nano-precipitation in low carbon micro-alloyed steels	United Kingdom Atomic Energy Authority	Online
6	19:10-19:35	Xiangliang Wan	China	The significant impact of annealing temperature on phase reversion-microstructure-property relationship in phase reversion-induced Cr-Mn-N stainless steels	Wuhan University of Science and Technology	In person
7	19:35-20:00					

July 28, 2021 Room 401 Session E: Light Alloys Session Chair: Hailiang Yu, Enyu Guo						
	Time	**Name**	**Country**	**Presentation Title**	**Institution**	**Attendance**
1	16:00-16:25	Hailiang Yu	China	Metal matrix composites development of high performance metal matrix composites via cryorolling	Central South University	In person
2	16:25-16:50	Min Zha	China	Novel superplastic deformation mechanism in a high solid solution Al–7Mg alloy with multi-scale microstructural heterogeneities	Jilin University	Online
3	16:50-17:15	Weishu Liu	China	Thermoelectric interfacial materials in the thermoelectric power generator	Southern University of Science and Technology	In person
4	17:15-17:40	Yilun Xu	UK	Integrated discrete dislocation plasticity modelling, HR-EBSD and TEM characterisation of Titanium alloys dwell fatigue	Imperial College London	In person
5	17:40-18:05	Yingjie Ma	China	The research and development of high strength and toughness α+β titanium alloy based on microzone optimization	Institute of Metal Research, Chinese Academy of Sciences	In person
	18:05-18:20	Tea Break				
6	18:20-18:45	Enyu Guo	China	Microstructural evolution in Mg/Al alloys: a perspective learned from synchrotron studies	Dalian University of Technology	In person
7	18:45-19:10	Zengbao Jiao	China	Ultrahigh-strength and ductile high-entropy alloys with coherent nano-lamellar architectures	Hong Kong Polytechnic University	Online
8	19:10-19:35	Qinglong Zhao	China	The improved corrosion resistance and mechanical strength of Al-Mg-Si by the addition of TiC nanoparticles	Jilin University	In person
9	19:35-20:00	Dikai Guan	UK	The evolution of recrystallised grains and its effects on weakened basal texture during annealing of a cold-rolled magnesium AZ31B alloy	The University of Sheffield	Online

July 28, 2021 Room 402 Session F: Welding & Joining Session Chair: Cong Wang, Lei Shi

	Time	Name	Country	Presentation Title	Institution	Attendance
1	16:00-16:25	Cong Wang	China	Fine-tuning weld metal compositions via flux optimization in submerged arc welding: an overview	Northeastern University	In person
2	16:25-16:50	Yongle Sun	UK	Thermal-metallurgical-mechanical modelling of electron beam welding in low alloy steel	Cranfield University	Online
3	16:50-17:15	Sutatch Ratanaphan	Thailand	Grain boundary engineering of shipbuilding steels subjected to high heat input submerged arc welding	King Mongkut's University of Technology	Online
4	17:15-17:40	Wenya Li	China	Solid-state cold spraying: goes beyond a coating process	Northwestern Polytechnical University	In person
5	17:40-18:05	Yvonne Durandet	Australia	Laser assisted spot joining of magnesium with and without adhesive	Swinburne University of Technology	Online
	18:05-18:20	Tea Break				
6	18:20-18:45	Lei Shi	China	Experimental and numerical analysis of acoustoplastic effect on friction stir welding process	Shandong University	In person
7	18:45-19:10	Chun Li	China	Diffusion bonding of Ti and Zr at ultra-low temperature via surface nano-crystallization treatment	Harbin Institute of Technology	In person
8	19:10-19:35	Imants Kaldre	Latvia	Thermoelectric effect during welding under external magnetic field	University of Latvia	Online
9	19:35-20:00	Gang Chen	China	Research progress on powder sintering involving TiH_2	University of Science and Technology Beijing	Online

July 28, 2021 Room 404 Session G: Structure & Integrity Session Chair: Shengchuan Wu, Xianfeng Ma						
	Time	**Name**	**Country**	**Presentation Title**	**Institution**	**Attendance**
1	16:00-16:25	Xianfeng Ma	China	On the mechanical property and failure mechanism of Cr-coated Zr4 alloy for accident tolerant fuel claddings	Sun Yat-sen University	In person
2	16:25-16:50	Thorsten Becker	South Africa	Anisotropy in near-threshold fatigue crack growth characteristics of laser-based powder bed fusion produced Ti-6Al-4V	Stellenbosch University	Online
3	16:50-17:15	Shuai Wang	China	On the orientation dependence of dislocation evolution in hydrogen-containing environment	Southern University of Science and Technology	In person
4	17:15-17:40	Yabin Yan	China	In situ SEM investigation on fatigue behaviors of microscale single-crytal fcc metals	East China University of Science and Technology	In person
5	17:40-18:05	Xian Chen	China	Mesomechanics experimental mechanics: dual beam-shear differential interference contrast microscopy	The Hong Kong University of Science and Technology	Online
	18:05-18:20	Tea Break				
6	18:20-18:45	Shengchuan Wu	China	The effect of defect population on the anisotropic fatigue resistance of AlSi10Mg alloy fabricated by laser powder bed fusion	Southwest Jiaotong University	In person
7	18:45-19:10	Mahmoud Mostafavi	UK	Application of crystal plasticity in high temperature structural integrity	University of Bristol	Online
8	19:10-19:35	Yadong Xu	China	Solution-processed metal halide perovskites for nuclear radiation detection	Northwestern Polytechnical University	In person
9	19:35-20:00	Ankur Chauhan	Germany	Superior low-cycle fatigue properties of CoCrNi compared to CoCrFeMnNi	Karlsruhe Institute of Technology	Online

July 28, 2021 Room 407 Session H: Phase Transformation Session Chair: Qiaodan Hu, Lijia Zhao

	Time	Name	Country	Presentation Title	Institution	Attendance
1	16:00-16:25	Haijun Yu	China	Structure evolution and design for high energy cathode of lithium-ions battery	Beijing University of Technology	In person
2	16:25-16:50	Qiaodan Hu	China	Structural mechanism of homogenous polycrystalline selection and glass transition in titanate melts	Shanghai Jiaotong University	In person
3	16:50-17:15	Tarek Hatem	Egypt	Microstructural numerical framework to model martensitic alloys: application to high-strength steels	British University in Egypt	Online
4	17:15-17:40	Daoyong Cong	China	Employing solid-state phase transition in shape memory alloys for elastocaloric refrigeration	University of Science and Technology Beijing	In person
5	17:40-18:05	Xiaowei Wang	China	Experimentally and analytically quantify the influence of cyclic loadings on the subsequent tensile and creep behaviors	Nanjing Tech Univerisity	Online
	18:05-18:20	Tea Break				
6	18:20-18:45	Lijia Zhao	China	Dynamic transformation behavior in low-carbon steel	Northeastern University	In person
7	18:45-19:10	Wangzhong Mu	Sweden	A machine learning model to predict deformation induced martensite transformation in austenitic stainless steels	KTH Institute of Technology	Online
8	19:10-19:35	Haiwen Luo	China	Microstructure, cooling history and its quantitative modelling of wuxilike iron meteorite	University of Science and Technology Beijing	In person
9	19:35-20:00	Chinnapat Panwisawas	UK	Digital manufacturing of solidification in investment cast single crystal superalloys	University of Leicester	Online