



**CHINA
HEAT
TREATMENT
ASSOCIATION**

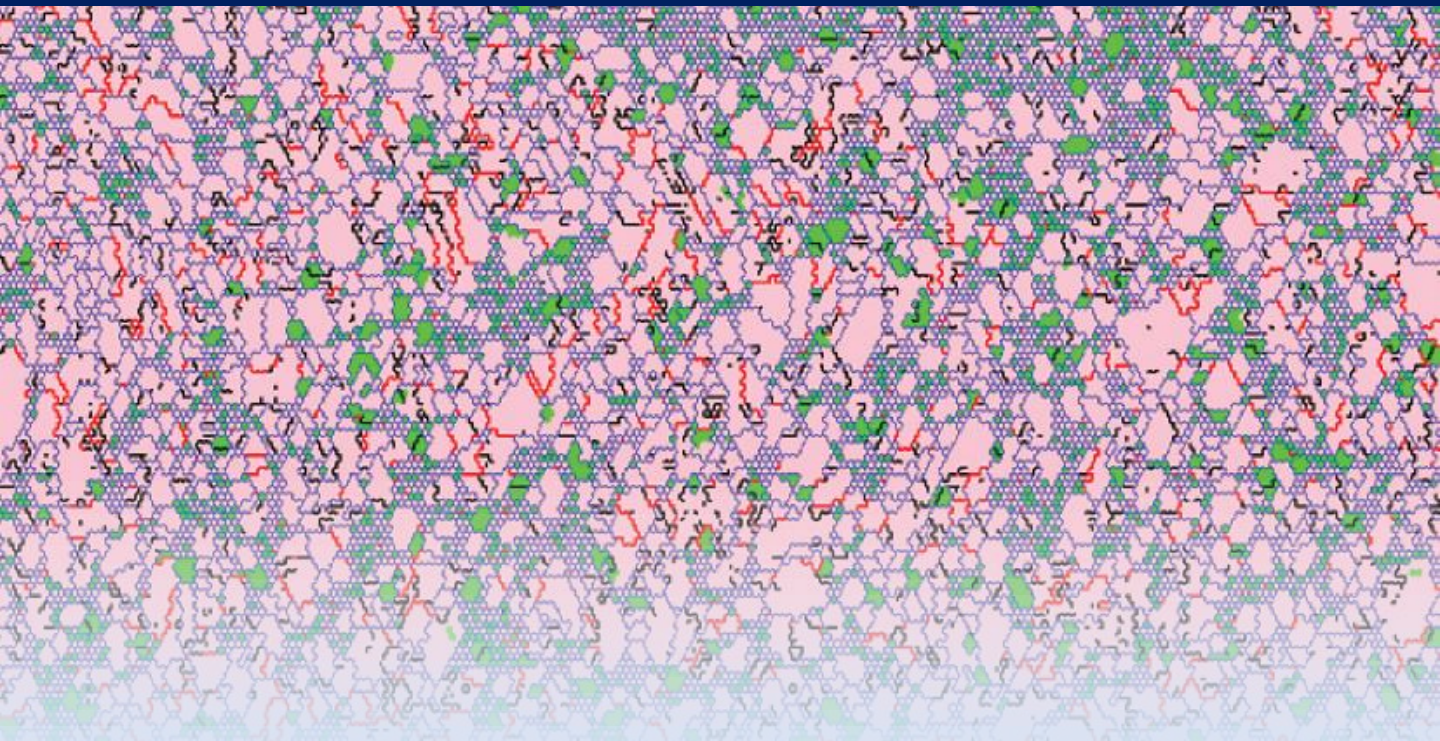


**INTERNATIONAL
FEDERATION FOR
HEAT TREATMENT
AND SURFACE
ENGINEERING**

5th Int'l Conf. on Heat Treatment and Surface Engineering of Tools and Dies

Initiated by IFHTSE, Organized by CHTA
Co-organized by Harbin Institute of Technology
and Hangzhou Jinzhou Technology Co., Inc.

PROGRAMME



**Hangzhou, China
24-26 April 2023**



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SCHEDULE (GMT+8)**日程**

Date 日期	Time 时间	Event 事项	Venue 地点
24 April 4月 24日	8:00 - 22:00	Registration 会议注册	InterContinental Hangzhou 良渚洲际酒店
	15:00 - 18:00	中国热协九届五次常务 理事大会	South Meeting Room, Building 4, North District, Dream Town 梦栖小镇北区4号楼南会议室
	18:30 - 20:00	Dinner 自助晚餐	InterContinental Hangzhou, Building B1 良渚洲际酒店B1楼会议区域
25 April 4月 25日	8:00 - 8:30	We gather at the Hotel entrance at 8:00 and take Bus to the Conference Venue	早8:00在酒店门口集体乘车去会场
	8:30 - 9:00	Opening Ceremony 开幕式	Meeting Room, Building 8, North District, Dream Town 梦栖小镇北区8号楼会议室
	9:00 - 12:30	Plenary Lectures 大会报告	Meeting Room, Building 8, North District, Dream Town 梦栖小镇北区8号楼会议室
	12:30 - 13:45	Lunch 午餐	Liangyulinjia Restaurant (Liangzhu) 良玉邻家(良渚店)
	13:45 - 18:00	Session I: Heat Treatment 分会场一：热处理	South Meeting Room, Building 4, North District, Dream Town 梦栖小镇北区4号楼南会议室
	13:45 - 18:00	Session II: Surface Engineering 分会场二：表面改性	Meeting Room, Building 8, North District, Dream Town 梦栖小镇北区8号楼会议室
	18:00 - 18:30	We gather at the entrance of the Building 8 at 18:10, and take Bus to the Hotel	下午18:10在8号楼会场门口集体乘车回酒店
	18:30 - 20:00	Banquet (The Best Paper Awards) 金舟之夜晚宴 优秀论文颁奖	InterContinental Hangzhou, Banquet Hall A 良渚洲际酒店平高宴会A厅
26 April 4月 26日	8:30 - 17:00	Visit (depart at 8:30, and return at 16:00) 参观 8:30出发, 16:00返回, 17:00到达酒店	We gather at the Hotel entrance, and visit SAMT Co., Ltd., and Lu Xun's Former Residence 在酒店门口集 体乘车至绍兴先越工厂,鲁迅故居



备注:

- ▲ 为各点位位置, 住宿良渚洲际酒店距离大会报告梦栖小镇北区8号楼约4.4公里, 梦栖小镇北区8号楼距离午餐饭店良玉邻家约200米。

Please take the bus shuttle to transfer between the InterContinental Hangzhou Liangzhu hotel and the conference venue at Liangzhu Dream Town

住宿酒店与会场之间有专用大巴车接送

25 April 2023 (GMT+8) • Opening Ceremony • Plenary Lectures

Opening Ceremony

Chair: Prof. Mufu Yan, Harbin Institute of Technology

8:30 — 9:00 **Opening Speech**



Prof. Xinya Li
President of CHTA



Wenhua Yao
Yuhang District
Vice Governor

Plenary Lectures

Chair: Dr. Fuyao Yan, Northwestern University

9:00 — 9:30



Prof. Zhenye Zhao [China]

Academician of CAE, Jimei University
Beijing Institute of Aeronautical Materials

Focus on Heat Treatment Industrialization and Promote High-end Manufacturing

9:30 — 10:00



Prof. Dr. Nader Asnafi [Sweden]

Luleå University of Technology
Zhejiang Chuangge Technology Co. Ltd

Metal Additive Manufacturing of Production Tools / Dies / Moulds – Benefits and Constraints

10:00 — 10:30



Dr. Scott MacKenzie [USA]

Quaker Houghton
Past President of IFHTSE

Metallurgical Aspects of Distortion and Residual Stresses in Heat Treated Parts

10:30 — 11:00



Xiaohui Tong [China]

Past President of CHTA

The Status and Trends of Heat Treatment in China

11:00 — 11:30



Prof. Massimo Pellizzari [Italy]

University of Trento
Vice President of IFHTSE

Heat Treatment of Additively Manufactured Tool steels: Microstructure and Properties

11:30 — 12:00

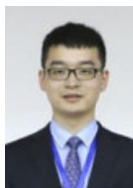


Prof. Jianfeng Gu [China]

Shanghai Jiao Tong University
Executive committee member of IFHTSE

Development of an additive manufactured high-strength Co-Fe-Ni alloy with high thermal conductivity for injection and die-casting mold

12:00 — 12:30



Dr. Shaolou Wei [USA]

Massachusetts Institute of Technology

Overcoming the limits of strain-induced martensitic transformation in metastable face-centered cubic alloys

25 April 2023 (GMT+8) • Session I — Heat Treatment

Time	Title Session Chair: Prof. Ruiliang Liu [Harbin Engineering University] Jinsheng Lu [Zhengzhou Research Institute of Mech. Eng. Co., Ltd]
13:45-14:05	<p>Experimental Study of Heat Treatment Process for GCr15 for High-end Bearings Xiaohong Dong,^a Hanqin Yin,^a Zejian Lu,^{*a} Xingfu Yu^b a Guangdong Strong Metal Technology Co., Ltd., Foshan, Guangdong 528313, China; b School of Mechanical Engineering, Shenyang University of Technology, Shenyang, Liaoning 110870, China</p>
14:05-14:35	<p>Processes of Vacuum Heat Treatment Li Shen* Shanghai Advanced Metallurgical Technology Corporation, Shanghai 201612</p>
14:35-14:55	<p>The low-temperature cooling rate control of polymer quenchants – way to replace quench oil with water Yu Hansen,* Ding Lin, Zuo Yongping Nanjing KERUN Lubricants Co.,Ltd. 1, Jingfeng industrial park, No. 98 Chengxin Avenue, Jiangning, Nanjing, 211100, China</p>
14:55-15:15	<p>Induction heating for the surface process of stamping die Jixu Xu* Shanghai Minzhao Industry Trade Co., Ltd. 10F ledu Building No.251 Ledu Road, Songjiang District Shanghai</p>
15:15-15:35	<p>Cryogenic Treatment of Steel and Its Application Kaixuan Gu,^{*a} Jia Guo,^{a, b} Zeju Weng,^a Junjie Wang,^{a, b} a CAS Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Beijing 100190, China; b Beijing Fawip Cryogenic Technology Co., Ltd, Beijing 100190, China</p>
15:35-15:50	<p>Mechanical and corrosion properties of bulk nanocrystalline 304 stainless steel plate Shenggang Wang,* Miao Sun Shenyang National Laboratory for Material Sciences, Institute of Metal Research, Chinese Academy of Sciences,110016, Shenyang, China</p>
15:50-16:05	<p>The Harm of Corrosion to Molds and the Importance of Surface Integrity Manufacturing Jingxian Luo* Institute of Heat Treatment, DAXING, TAIZHOU</p>
16:05-16:20	<p>Carbon emission calculation method for heat treatment industry Kun Li,^{*a,b} Weijiang Yu,^{a,b,c} Yongwu Zhang,^{a,b} Jiayang Yu,^c Jia Yang^a a Xi'an Electric Furnace Institute Co., Ltd, Xi'an 710061,China; b MCC Electric Furnace Engineering Technology Center, Xi'an 710061, China; c Xi'an Huijin Science and Technology Co., Ltd, Xi'an 710061, China</p>

25 April 2023 (GMT+8) • Session I — Heat Treatment

Time	Title Session Chair: Prof. Jing Hu [Changzhou University] Prof. Hongtao Chen [Harbin University of Science and Technology]
16:20-16:35	Heat Treatment for the Toughening of Tool and Die Steels Zhizhong Yuan, ^{*a} Lu Chen, ^a Mengfei Wang, ^a Jiabo Wei, ^{a,b} , Haiming Liu ^a , Zongran Niu ^a , Zhiyuan Wang ^a , Yulin Ju ^a , Fuyang Cao ^a , Rui Luo ^a and Bocheng Zhang, ^{a,c} a School of Materials Science and Engineering, Jiangsu University, Zhenjiang Jiangsu 212013, China; b Bruker Nano Analytics GmbH, Shanghai 200000, China; c Jingkou Heat Treatment Service Station of Zhenjiang, Zhenjiang Jiangsu 212012, China
16:35-16:55	Integrated High Pressure Die Casting's challenge to Tool Steel and Heat Treatment Jackson Sun* Schmiede werke Gröditz GmbH, Building A -206, Digital Mansion, Flower City, NO.1079 Nahai Ave. Shekou, Nanshan District, Shenzhen, China
16:55-17:10	Surface corrosion behavior of different aged 2A97 Al alloy after mechanical polishing Yuxiao Qiu, ^a Junfeng Chen, ^{*a} Rongyi Liu, ^a Linchi Zou, ^b Haitao Chi ^c a School of Materials Science and Engineering, Fuzhou University, Fujian 350116, China; b School of Materials Science and Engineering, Fujian University of Technology, Fuzhou 350118, China; c Fujian Xiangxin Light alloys manufacture Co., Ltd., Fuzhou 350119, China
17:10-17:30	Heat treatment and surface strengthening of high-speed steel molds Buqing Zhao* Jialong Knives Manufacturing Co., Ltd, Maanshan, An Hui, 243131
17:30-17:45	Status quo and selection of testing instruments and equipment using for heat treatment quality control Alex Zhang* Standard-Trust Testing Technology Co., Ltd. , 11, No.2 Guigu Road, Guigu Science Park, Jiashan County, Zhejiang 314100, China
17:45-18:00	Application of Laser Phase Change Hardening Technology with High Heat Concentration Luo Hong* Beijing Jingye Bearing Co., Ltd.

25 April 2023 (GMT+8) • Session II — Surface Engineering

Time	<p style="text-align: right;">Session Chair: Prof. Nader Asnafi [Luleå University of Technology] Prof. Yanxiang Zhang [Harbin Institute of Technology]</p>
13:45-14:00	<p>Metastable structure transformation of diamond-like carbon films for tools and dies Yefei Zhou^{*a}, Zhihao Chen^a, Zhengyu Qian^b, Xiaolei Xing^{*a} a School of Mechanical Engineering, Yanshan University, Qinhuangdao 066004, China; b Star-Arc Coating New Material Technology Co., LTD, Suzhou 215000, China</p>
14:00-14:15	<p>Research on the application of New-QPQ in hot-working die steel Defu Luo,[*] Liwei Long, Fangzhou Wang School of Materials Science and Engineering, Xihua University, Chengdu Sichuan 610039, China</p>
14:15-14:30	<p>Prediction of quenching crack by numerical simulation with an embeded ductile fracture criterion Daming Tong, Miao Gong, Jianfeng Gu[*] Institute of Materials Modification and Modelling, School of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai 200240, China</p>
14:30-14:45	<p>Low temperature plasma nitriding with high efficiency and excellent performance enhanced by titanium for 304 austenitic stainless steel Runtao Li,^a Jing Hu,^{*a} Xiaobing Zhao^{a, b} a Jiangsu Key Laboratory of Materials Surface Science and Technology, Changzhou University, Changzhou 213164, China; b National Experimental Demonstration Center for Materials Science and Engineering, Changzhou University, Changzhou 213164, China</p>
14:45-15:00	<p>Study on Phase Control and Corrosion Mechanism of Nitridation Post-Oxidation Jinquan Sun,^{*a} Yanpeng Xue,^b Zan Liu,^a Fujie Li,^a Chongyang Zhong,^a Haotian li,^a Yucha Gao^a a Shandong University of Science and Technology; b University of Science and Technology Beijing</p>
15:00-15:15	<p>Enhancement of Hardness and Sliding Wear Properties of Ti-6Al-4V Alloy by Cold Rolling/Low Temperature Nitriding Composite Process Yudong Fu[*] College of Materials Science and Chemical Engineering, Harbin Engineering University, Harbin 150001, China</p>
15:15-15:30	<p>Catalysis and strengthening mechanism of rare earth in plasma nitriding from first principles Yuan You,^{*a} Mufu Yan^b a School of Materials Science and Engineering, Heilongjiang Provincial Key Laboratory of Polymeric Composition materials, Qiqihar University, Qiqihar Heilongjiang 161006, China; b School of Materials Science and Engineering, National Key Laboratory for Precision Hot Processing of Metals, Harbin Institute of Technology, Harbin, Heilongjiang 150001, China</p>
15:30-15:45	<p>Catalytic nitriding of AISI H13 dies by ABO₃ perovskite oxides Chengsong Zhang,[*] Shuai Li, Daodong Tang School of Materials Science and Engineering, Southwest Jiaotong University, Chengdu, 610036, P.R. China</p>
15:45-16:00	<p>Numerical simulation and properties of 42CrMo Steel surface modified layer with plasma nitriding and laser quenching Yixue Wang[*] School of Materials Science and Engineering, Shanghai University of Engineering Science, Shanghai 201620</p>

25 April 2023 (GMT+8) • Session II — Surface Engineering

Time	Title Prof. Jinquan Sun [Shandong University of Science and Technology] Prof. Yuan You [Qiqihar University]	Session Chair:
16:00-16:15	A kinetic model for vacuum carburizing Yanxiang Zhang, ^{*a} Mufu Yan, ^a Leyu Zhou, ^b Yueming Xu ^b a School of Materials Science and Engineering, National Key Laboratory for Precision Hot Processing of Metals, Harbin Institute of Technology, Harbin, Heilongjiang 150001, China; b Beijing Research Institute of Mechanical & Electrical Technology, Beijing 100083, China	
16:15-16:30	Rare earth accelerated plasma nitriding on CoCrCuFeNi high entropy alloys Yifan Wang, ^a Yuan You ^{*a} , Mufu Yan ^b a School of Materials Science and Engineering, Heilongjiang Provincial Key Laboratory of Polymeric Composition materials, Qiqihar University, Qiqihar Heilongjiang 161006, China; b School of Materials Science and Engineering, National Key Laboratory for Precision Hot Processing of Metals, Harbin Institute of Technology, Harbin, Heilongjiang 150001, China	
16:30-16:45	Thermal stability of low-temperature plasma nitrided layer on 17-4PH stainless steel under simulated service environment Lingze Li, Ruiliang Liu, [*] Quanli Liu Key Laboratory of Superlight Material and Surface Technology of Ministry of Education, College of Materials Science and Chemical Engineering, Harbin Engineering University, Harbin 150001, China	
16:45-17:00	Microstructure evolution of gradient-structured Cu-2Ti alloys produced by surface mechanical attrition treatment Huan Wei ^a , Lifeng Hou ^b , Huayun Du ^b , Yinghui Wei ^{b,*} a College of Aeronautics and Astronautics, Taiyuan University of Technology; b College of Materials Science and Engineering, Taiyuan University of Technology, 030024, Shanxi, China	
17:00-17:15	Microstructure and Hardness Distribution of 20Cr2Ni4 Steel after Carburizing and Quenching: Prediction and Experiment Bangzhan Long, Lei Zhu, Ying Yang, Yanxiang Zhang, Mufu Yan [*] School of Materials Science and Engineering, Harbin Institute of Technology, Harbin 150001, China	
17:15-17:30	Improved high temperature oxidation resistance of AISI304 steel by PVA modified Al sol coating Hao Wu, Hongtao Chen, [*] Jichao Lu, Yicheng Feng, Sicong Zhao, Erjun Guo School of Materials Science and Chemical Engineering, Harbin University of Science and Technology. Harbin 150080, P R China	
17:30-17:45	Effect of Cu on microstructure and wear properties of TiAl/Cu composite coatings Qin Wang, Bin Han, [*] Qi Zhang, Meiyang Li, Fuhao Qi, Lihu Guo School of Materials Science and Engineering, China University of Petroleum (East China), 66 Chang Jiang West Road, Qingdao, 266580, China	
17:45-18:00	Investigation on Microstructure and Properties of CoCrFeNiMo High Entropy Alloy Coating Prepared by High-speed Laser Cladding Qi Zhang, Bin Han, [*] Qin Wang, Fuhao Qi, Meiyang Li, Chunyang Hu School of Materials Science and Engineering, China University of Petroleum (East China), 66 Chang Jiang West Road, Qingdao, 266580, China	