

## The 2<sup>nd</sup> Announcement

### **5<sup>th</sup> International Conference on Matter and Radiation at Extremes (ICMRE2022)**

**June 7-9, 2022**

**Virtual Meeting**

The International Conference on Matter and Radiation at Extremes (ICMRE) is supported by the Journal Matter and Radiation at Extremes. It was successfully held in Chengdu, Beijing, Tsingtao and Hefei in China respectively in the year of 2016, 2017, 2018 and 2019. Due to the COVID 19 pandemic, the 5th International Conference on Matter and Radiation at Extremes has been postponed to 2022.

ICMRE2022 will provide a forum to discuss the latest results of physics, technology and applications in the area of matter and radiation at extremes.

**Date and time:** June 7-9, 2022, starts at 20:00 Beijing time/8:00 EDT/14:00 Paris time/12:00 GMT each day.

**Conference format:** Virtual meeting (No registration fee, watch freely worldwide)

**Official Website:** <http://icmre2022.mre.org.cn/>.

#### **Program:**

The conference will last for three days from June 7<sup>th</sup> to 9<sup>th</sup>.

June 7th	Beijing Time 20:00-20:30, Paris Time 14:00-14:30, EDT 8:00-8:30	Opening and Award Ceremony
	Beijing Time 20:30-23:50, Paris Time 14:30-17:50, EDT 8:30-11:50	Plenary Session
June 8th	Beijing Time 20:00-22:40, Paris Time 14:00-16:40, EDT 8:00-10:40	Parallel Sessions 1: Equation of State 2: High Pressure Science 3: Laser Plasma Interaction 4: Laboratory Astrophysics

June 9th	Beijing Time 20:00-21:35, Paris Time 14:00-15:35, EDT 8:00-9:35	MRE Forum Discussion on Next Generation Lasers for High Energy Density Science (HEDS)
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Please refer to Appendix A for detailed program.

**Note:** Plenary talk: 40 min presentation + 10 min Q&A; Keynote talk: 30 min presentation + 10 min Q&A; Invited talk: 25 min presentation + 5 min Q&A; Forum: 15 min presentation + 30 min panel discussion.

### Live Streaming:

#### The opening ceremony, award ceremony and plenary session:

**Koushare:** <https://www.koushare.com/topicIndex/i/ICmrexc>.

**Zoom:** Zoom ID: 984 5752 5658, Code: 682401

<https://zoom.us/j/98457525658?pwd=cXVheEZxVWxYWC9KOG5FYkNveHA2QT09>

#### The parallel sessions:

**Koushare:** <https://www.koushare.com/topicIndex/i/ICmrexc>.

#### Zoom:

Parallel session 1-Equation of State: ZOOM ID: 984 5752 5658, Code: 682401

<https://zoom.us/j/98457525658?pwd=cXVheEZxVWxYWC9KOG5FYkNveHA2QT09>.

Parallel session 2-High Pressure Science: ZOOM ID: 992 7114 4862, Code: 682401

<https://zoom.us/j/99271144862?pwd=YUpnSXNmairs3NHhHaHdxNFILYlhPUT09>.

Parallel session 3-Laser Plasma Interaction: ZOOM ID: 959 1709 3343, Code: 682401

<https://zoom.us/j/95917093343?pwd=QmpvdDYvaUNOMG42RFAvY043YytGQT09>.

Parallel session 4-Laboratory Astrophysics: ZOOM ID: 967 7504 8105, Code: 682401

<https://zoom.us/j/96775048105?pwd=Y1UvdHIrcFDV3M0K3FBV0VYYTU3QT09>.

#### MRE Forum:

**Koushare:** <https://www.koushare.com/topicIndex/i/MREForum>.

**Zoom:** Zoom ID: 984 5752 5658, Code: 682401

<https://zoom.us/j/98457525658?pwd=cXVheEZxVWxYWC9KOG5FYkNveHA2QT09>.

### Hosts:

Institute of Applied Physics and Computational Mathematics  
Shaanxi Normal University, China

### Co-Hosts:

Matter and Radiation at Extremes  
High Power Laser and Particle Beams  
Institute of Fluid Physics, China Academy of Engineering Physics, China  
Laser Fusion Research Center, China Academy of Engineering Physics, China  
Computational Physics Division, China Nuclear Society  
Koushare

### Sponsors:

National Natural Science Foundation of China  
Institute of Applied Physics and Computational Mathematics

### Chairs:

**General Chair:** Weiyan Zhang  
**Co-Chairs:** Jean-Luc Miquel, Michel Koenig, Ho-Kwang Mao  
**Local Chairs:** Jianguo Wang, Shixian Qu

### Scientific Committee:

**Chair:** Stefan Weber  
**Members:** Ke Lan (蓝可), Dieter Hoffmann, Alexis Casner, David Crandall, Jianjun Deng (邓建军), Yongkun Ding (丁永坤), Kuo Li (李阔), Baifei Shen (沈百飞), Baohan Zhang (张保汉), Jianguo Wang (王建国), Qiang Wu (吴强), Wei Kang (康炜), G. Gregori, D. Froula, Paul LOUBEYRE, Joao SANTOS

### Local Organizing Committee:

**Chair:** Suhua Wei (魏素花), Chengli Yan (晏成立)  
**Coordinator:** Ying Huang (黄颖),  
**Members:** Songbin Zhang (张松斌), Yongjun Cheng (程勇军), Qianqian Li (李芊芊), Hailing Hua (花海灵), Hao Yang (杨蒿), Tianhui Li (李天惠), Peng Fu (傅鹏), Qiang Xu (徐强), Feng Zhang (张锋), Ping Li (李平), Le Zhang (张乐), Qingyang Hu (胡清扬)

## Contact

**Phone:** +86-816-2483833

**Email:** mreoo@aip.org

## Appendix A: Detailed Program

**June 7, 2022**

### Opening and Award Ceremony

Beijing Time 20:00-20:05, Paris Time 14:00-14:05, EDT 8:00-8:05

Moderator: Michel Koenig

Opening Ceremony

Beijing Time 20:05-20:15, Paris Time 14:05-14:15, EDT 8:05-8:15

Moderator: Dieter Hoffmann

Best Paper Award Ceremony

Beijing Time 20:15-20:30, Paris Time 14:15-14:30, EDT 8:15-8:30

Moderator: Dieter Hoffmann

Young Scientist Award Ceremony

### Plenary Session

Plenary talk 1: Beijing Time 20:30-21:20, Paris Time 14:30-15:20, EDT 8:30-9:20

Moderator: Michel Koenig

Jianbo Hu, Institute of Fluid Physics, China Academy of Engineering Physics, China

"Shock-induced phase transitions: from macroscopic to microscopic point of view"

Plenary talk 2: Beijing Time 21:20-22:10, Paris Time 15:20-16:10, EDT 9:20-10:10

Moderator: Michel Koenig

Christoph Keitel, Max-Planck Institute for Nuclear Physics in Heidelberg, Germany

"Extreme-field physics with electron beams, relativistic plasmas and strong laser pulses"

Plenary talk 3: Beijing Time 22:10-23:00, Paris Time 16:10-17:00, EDT 10:10-11:00

Moderator: Jean-Luc Miquel

Wanguo Zheng, Laser Fusion Research Center, China Academy of Engineering Physics, China

"Update on the Laser Driver for ICF"

Plenary talk 4: Beijing Time 23:00-23:50, Paris Time 17:00-17:50, EDT 11:00-11:50

Moderator: Jean-Luc Miquel

Dominik Kraus, University of Rostock, Germany

"Pressure effects on the electronic structure of carbon-hydrogen mixtures in the Mbar to Gbar regime"

**June 8, 2022**

**Topical sessions**

**Parallel session 1: Equation of State**

Keynote speech 1: Beijing Time 20:00-20:40, Paris Time 14:00-14:40, EDT 8:00-8:40

Moderator: Wei Kang

Alessandra Ravasio, Laboratoire d'Utilisation des Lasers Intenses (LULI), CNRS, France

"Exploring metallic and superionic ammonia in ice giant interiors"

Invited talk 1-1: Beijing Time 20:40-21:10, Paris Time 14:40-15:10, EDT 8:40-9:10

Moderator: Wei Kang

Jiawei Xian, Institute of Applied Physics and Computational Mathematics, Beijing, China

"Phase diagram and equation of state for beryllium from ab initio molecular dynamics simulations"

Invited talk 1-2: Beijing Time 21:10-21:40, Paris Time 15:10-15:40, EDT 9:10-9:40

Moderator: Haifeng Liu

Kento Katagiri, Osaka University, Japan

"Hugoniot Equation-of-State of Polyimide up to 600 GPa"

Invited talk 1-3: Beijing Time 21:40-22:10, Paris Time 15:40-16:10, EDT 9:40-10:10

Moderator: Haifeng Liu

Wei Kang, Peking University, China

**“Equation of state of hydrocarbon: How Close Between Theories and Experiments”**

Invited talk 1-4: Beijing Time 22:10-22:40, Paris Time 16:10-16:40, EDT 10:10-10:40

Moderator: Haifeng Liu

Pavel Levashov, Joint Institute for High Temperatures RAS, Moscow, Russia

**“Shock-wave experiments and phase diagrams for liquid metals: ab initio study”**

**Parallel session 2: High Pressure Science**

Keynote Speech 2: Beijing Time 20:00-20:40, Paris Time 14:00-14:40, EDT 8:00-8:40

Moderator: Ho-Kwang Mao

Yanming Ma, State Key Laboratory of Superhard Materials, Jilin University, China

**“Clathrate Superhydrides Stabilized at High Pressure: A Class of Conventional Superconductors that work at near room temperature”**

Invited talk 2-1: Beijing Time 20:40-21:10, Paris Time 14:40-15:10, EDT 8:40-9:10

Moderator: Ho-Kwang Mao

Roberto Bini, University of Florence, UNIFI - Chemistry Department, Italy

**“Steps forward in designing carbon nanothreads with tailored optical properties”**

Invited talk 2-2: Beijing Time 21:10-21:40, Paris Time 15:10-15:40, EDT 9:10-9:40

Moderator: Kuo Li

Zhisheng Zhao, State Key Laboratory of Metastable Materials Science and Technology, Yanshan University, China

**“Direct transformation mechanism from graphite to diamond”**

Invited talk 2-3: Beijing Time 21:40-22:10, Paris Time 15:40-16:10, EDT 9:40-10:10

Moderator: Kuo Li

Viktor Struzhkin, Center for High Pressure Science and Technology Advanced Research, Shanghai, China

**“Magnetic susceptibility studies in new hydride superconductors”**

Invited talk 2-4: Beijing Time 22:10-22:40, Paris Time 16:10-16:40, EDT 10:10-10:40

Moderator: Kuo Li

Leonid Dubrovinsky, University Bayreuth, Germany

“Chemistry in high pressure wonderland”

### Parallel session 3: Laser Plasma Interaction

Keynote Speech 3: Beijing Time 20:00-20:40, Paris Time 14:00-14:40, EDT 8:00-8:40

Moderator: Stefan Weber

Sylvie Depierreux, CEA, Paris, France

“Experiments Evidencing Stimulated Raman Scattering  
Increased by Multibeam Effects and Plasma Inhomogeneity”

Invited talk 3-1: Beijing Time 20:40-21:10, Paris Time 14:40-15:10, EDT 8:40-9:10

Moderator: Stefan Weber

Tony Arber, University of Warwick, UK

“Recent progress in modelling laser-plasma interactions for shock ignition”

Invited talk 3-2: Beijing Time 21:10-21:40, Paris Time 15:10-15:40, EDT 9:10-9:40

Moderator: Vladimir Tikhonchuk

Jason Myatt, Edmonton University, Canada

“The role of stimulated Raman side scattering indirectly-driven laser-plasma  
experiments”

Invited talk 3-3: Beijing Time 21:40-22:10, Paris Time 15:40-16:10, EDT 9:40-10:10

Moderator: Vladimir Tikhonchuk

Liang Hao, Institute of Applied Physics and Computational Mathematical, Beijing,  
China

“Investigation on collective stimulated Brillouin scattering with shared scattered light  
of two overlapping laser beams”

Invited talk 3-4: Beijing Time 22:10-22:40, Paris Time 16:10-16:40, EDT 10:10-10:40

Moderator: Vladimir Tikhonchuk

Kevin Glize, Shanghai Jiao Tong University, China

“Observation of the stimulated Raman side-scattering predominance in the  
compression stage of the Double-Cone Ignition Direct-Drive approach”

### Parallel session 4: Laboratory Astrophysics

Keynote Speech 4: Beijing Time 20:00-20:40, Paris Time 14:00-14:40, EDT 8:00-8:40

Moderator: Michel Koenig

Frederico Fiuza, SLAC National Accelerator Laboratory, Stanford University, US

“Laboratory observation of electron acceleration in collisionless shocks”

Invited talk 4-1: Beijing Time 20:40-21:10, Paris Time 14:40-15:10, EDT 8:40-9:10

Moderator: Michel Koenig

Florian Debras, IRAP, France

“Constraining the interior of giant planets with state-of-the-art equations-of-state of warm dense matter”

Invited talk 4-2: Beijing Time 21:10-21:40, Paris Time 15:10-15:40, EDT 9:10-9:40

Moderator: Alexis Casner

Jieru Ren, Xi'An Jiaotong University, China

“Laboratory generation and applications of uniform dense plasma”

Invited talk 4-3: Beijing Time 21:40-22:10, Paris Time 15:40-16:10, EDT 9:40-10:10

Moderator: Alexis Casner

Gabriel Rigon, Nagoya University, Japan

“A study of Rayleigh-Taylor instability and Supernova remnant from astrophysics to laboratory experiment”

Invited talk 4-4: Beijing Time 22:10-22:40, Paris Time 16:10-16:40, EDT 10:10-10:40

Moderator: Alexis Casner

Arno Vanthieghem, Princeton University, US

“Microturbulence in unmagnetized relativistic collisionless shock waves”



**June 9, 2022**

**MRE Forum (Discussion on Next Generation Lasers for High Energy Density Science (HEDS))**

Beijing Time 20:00-20:05, Paris Time 14:00-14:05, EDT 8:00-8:05  
Moderator: David Crandall

**Introduction to MRE Forum**

Invited talk F-1: Beijing Time 20:05-20:20, Paris Time 14:05-14:20, EDT 8:05-8:20  
Moderator: David Crandall

Robbie Scott, Central Laser Facility, UK

**“Laser Driver Requirements for Inertial Fusion Energy”**

Invited talk F-2: Beijing Time 20:20-20:35, Paris Time 14:20-14:35, EDT 8:20-8:35  
Moderator: David Crandall

Todd Ditmire, University of Texas at Austin, US

Invited talk F-3: Beijing Time 20:35-20:50, Paris Time 14:35-14:50, EDT 8:35-8:50  
Moderator: David Crandall

Ryosuke Kodama, Osaka University, Japan

Invited talk F-4: Beijing Time 20:50-21:05, Paris Time 14:50-15:05, EDT 8:50-9:05  
Moderator: David Crandall

Yanqi Gao, Shanghai Institute of Laser Plasma, China

**“Low-coherence KunWu laser facility and LPI Experiment on it”**

Beijing Time 21:05-21:35, Paris Time 15:05-15:35, EDT 9:05-9:35  
Moderator: David Crandall and Ke Lan

**Discussion**