



# PTM2020

## The 8<sup>th</sup> International Conference on Solid→Solid Phase Transformations in Inorganic Materials

Xi'an, China

June 29<sup>th</sup>-July 3<sup>rd</sup>, 2020

### *Topics*

- ◇ Diffusional transformations
- ◇ Displacive transformations
- ◇ Advances in experimental techniques
- ◇ Industrial applications
- ◇ Advances in modelling and simulation
- ◇ Emerging areas

Organized by



The Chinese Society for Metals

Website: [www.ptm2020.com](http://www.ptm2020.com)

## **Contents / Important Dates / Conference Secretariat**

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### **Important Dates**

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- Abstract Submission Deadline  
Tuesday, December 31, 2019
- Author's Registration Deadline  
Sunday, March 1, 2020
- Early Registration Deadline (Regular Participant)  
Wednesday, April 1, 2020
- Deadline for Cancellation  
Monday, June 15, 2020
- Registration  
Sunday, June 28, 2020
- Conference  
June 29-July 3, 2020

### **Conference Secretariat**

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## Welcome Address

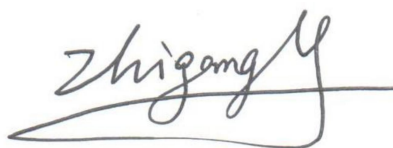
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**Dear Colleagues,**

It is our pleasure to announce that the 8<sup>th</sup> International Conference on Solid→Solid Phase Transformations in Inorganic Materials (PTM2020) will be held in Xi'an, China from June 29 to July 3, 2020. The goal of PTM2020 is to bring together international experts on solid→solid state phase transformation from academia and industry to meet and discuss their research each other in a friendly atmosphere.

Together with Athens, Cairo and Rome, Xi'an is among the four major ancient civilization capitals of the world. It is on the natural westward land route out of China into Central Asia, the starting point and terminus of the Silk Road, which brought the city material wealth as well as religious and cultural melting for over a thousand years. Xi'an boasts a history of more than 3,000 years, of which more than 1100 years were as the national capital for 13 dynasties. It has many places of historic interest, including: the Terracotta Warriors, the Banpo Museum, the Huaqing Spring, Shaanxi Museum of History, etc. In addition to technical program, a varied social program is planned for all participants and their companions.

We invite you to join us in Xi'an and look forward to hosting a successful and inspiring conference!



Chairman of Organizing Committee of PTM2020

Professor of Tsinghua University

Zhigang YANG

## History and Scope

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The International Conference on Solid→Solid Phase Transformations in Inorganic Materials (PTM), held every 5 years, is organized in a way to maximize the interaction and discussion between researchers in the field. The 8<sup>th</sup> PTM conference will be held in China for the first time, the previous conferences being held in:

1981 - Pittsburgh

1987 - Cambridge

1994 - Nemaquin Woodlands

1999 - Kyoto

2005 - Phoenix

2010 - Avignon

2015- Whistler

The following broad topics will be covered by PTM2020, include but not limited to:

- Diffusional transformations including nucleation, growth, coarsening, precipitation, spinodal decomposition, interphase migration, austenite-ferrite transformation, order-disorder transformations, elasticity
- Displacive transformations including martensitic transformations and shape memory alloys
- Advances in experimental techniques including scattering and diffraction techniques, atom probe, high-resolution electron microscopy and laser ultrasonics
- Advances in modelling and simulation including atomistic simulations, phase field and other meso-scale simulations, multi-scale modelling, fundamentals of structures, thermodynamics and diffusion
- Industrial applications including phase transformations in advanced high strength steels, thermo-mechanical processing, welding and nuclear materials
- Emerging areas including phase transformations during additive manufacturing, phase transitions in interfaces, high entropy alloys; amorphous alloys/quasicrystals, nanomaterials and materials for sustainable energy

## Organizers / Committees

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### Organized by

The Chinese Society for Metals (CSM)

### Co-sponsored by

The Japan Institute of Metals and Materials (JIM), Japan

Materials Australia (MA), Australia

The Korean Institute of Metals and Materials (KIM), Korea

The Chinese Materials Research Society (C-MRS), China

The Minerals, Metals, and Materials Society (TMS), USA

### Organizing Committee

**Zhigang Yang (Chair)**, Professor of Tsinghua University

**Hao Chen**, Associate Professor of Tsinghua University

**Chengjia Shang**, Professor of University of Science & Technology Beijing

**Qing Song (Secretary General)**, Professor of The Chinese Society for Metals

**Xinjiang Wang**, Professor of The Chinese Society for Metals

### Advisor to The Organizing Committee

**Yuqing Weng**, Academician, The Chinese Society for Metals

### International Scientific Committee

<b>Markus Apel</b>	RWTH Aachen University	Germany
<b>Benoit Appolaire</b>	University of Lorraine	France
<b>Annika Borgensam</b>	The Royal Institute of Technology	Sweden
<b>Francisca G. Caballero</b>	Spanish National Center for Metallurgical Research (CENIM-CSIC)	Spain
<b>Long-Qing Chen</b>	Penn State University	United States of America
<b>Amy J. Clarke</b>	Colorado School of Mines	United States of America
<b>Alexis Deschamps</b>	Grenoble Institute of Technology	France
<b>Masato Enomoto</b>	Ibaraki University	Japan

<b>Alphonse Finel</b>	University of Paris-Saclay	France
<b>Tadashi Furuhara</b>	Tohoku University	Japan
<b>Ernst Gamsjäger</b>	Montanuniversitaet Leoben	Austria
<b>Baptiste Gault</b>	Max-Planck-Institut für Eisenforschung	Germany
<b>Hélio Goldenstein</b>	University of São Paulo	Brazil
<b>James M. Howe</b>	University of Virginia	United States of America
<b>Mingxin Huang</b>	The University of Hong Kong	Hong Kong, China
<b>Christopher Hutchinson</b>	Monash University	Australia
<b>Pascal Jacques</b>	Université catholique de Louvain	Belgium
<b>Xuejun Jin</b>	Shanghai Jiao Tong University	China
<b>Ernst Kozeschnik</b>	Technische Universität Wien	Austria
<b>Yanjun Li</b>	Norwegian University of Science and Technology	Norway
<b>Feng Liu</b>	Northwestern Polytechnical University	China
<b>Yongchang Liu</b>	Tianjin University	China
<b>Lei Lu</b>	Shenyang National Laboratory for Materials Science	China
<b>Haiwen Luo</b>	University of Science and Technology Beijing	China
<b>Emmanuelle Marquis</b>	University of Michigan	United States of America
<b>Knut Marthinsen</b>	Norwegian University of Science and Technology	Norway
<b>Matthias Militzer</b>	The University of British Columbia	Canada
<b>Goro Miyamoto</b>	Tohoku University	Japan
<b>Tetsuo Mohri</b>	Tohoku University	Japan
<b>Jianfeng Nie</b>	Monash University	Australia
<b>Michel Perez</b>	Institut National des Sciences Appliquées de Lyon	France

<b>Eugen Rabkin</b>	Technion-Israel Institute of Technology	Israel
<b>Michel Rappaz</b>	Ecole Polytechnique Fédérale de Lausanne	Switzerland
<b>Jose M. Rodriguez-Ibabe</b>	University of Navarra	Spain
<b>Chadwick W. Sinclair</b>	The University of British Columbia	Canada
<b>Ingo Steinbach</b>	Ruhr-University Bochum	Germany
<b>Peter W. Voorhees</b>	Northwestern University	United States of America
<b>Yunzhi Wang</b>	The Ohio State University	United States of America
<b>Wei XU</b>	Northeastern University	China
<b>Jer-Ren Yang</b>	National Taiwan University	Taiwan, China
<b>Wenzheng Zhang</b>	Tsinghua University	China
<b>Hatem S. Zurob</b>	McMaster University	Canada

## Call for papers / Aaronson Award / Hillert-Cahn Award

### Call for papers

If you wish to contribute a presentation or poster for PTM2020, please submit an abstract (less than 150 words) through the conference website: [www.ptm2020.com](http://www.ptm2020.com) by **Dec. 31, 2019**.

Additional details including venue and accommodation information will be posted on the official website shortly and shown in the next announcement.

Do not hesitate to broadcast this announcement to your colleagues which may show interest in PTM2020 conference.

### Aaronson Award

The organizing committee of PTM2020 is pleased to announce the offering of the "Aaronson Award", an award to be given every PTM conference to an outstanding graduate student or young researcher in recognition of his/her exceptional contribution to the physical metallurgy of phase transformations. The award is intended to commemorate Prof. Aaronson's passion to understand phase transformations as exemplified through his teaching, scientific research, and in particular, his support and mentoring of students and young colleagues in the field. The award is open to all current graduate students or those who have graduated less than three years prior to PTM2020 (i.e. on or after July 1, 2017). Students should indicate that they wish to apply for the award when submitting their abstract for the conference. An application will consist of a curriculum vitae and a reference letter from their immediate supervisor, including a statement that they are eligible for the award.

**Applications should be sent as pdf-file to Conference Secretariat ([ptm2020@csm.org.cn](mailto:ptm2020@csm.org.cn)) before December 1, 2019.**

Please refer also to the official conference website: [www.ptm2020.com](http://www.ptm2020.com) regarding further information. Based on these applications a short list of nominees will be selected. These nominees will be expected to present their papers orally at the conference and as a paper in the proceedings. The written papers and oral presentations will serve as an important criterion to finalize the selection of the awardee.

### **Hubert I. Aaronson:**

Prof. Hubert I. Aaronson, simply known as Hub to his friends and colleagues, was a founding member of the PTM conference series. He received his BS, MS, and Ph.D. in metallurgical engineering from Carnegie Institute of Technology (now Carnegie Mellon University). Hub greatly influenced the field of solid-solid phase transformations through his publication of more than 300 scientific papers, teaching and support of young colleagues, and in organizing highly focused conferences on key topics important to the development of the field. He was particularly well known for his major contributions to the subjects of diffusional nucleation and growth, and the mechanisms



of phase transformations. Hub was recognized with many awards, and was a member of the U.S. National Academy of Engineering; a fellow of The Minerals, Metals and Materials Society, and ASM International; and an honorary member of the Japan Institute of Metals. Hub's passion to understand phase transformations, his impressive knowledge of the literature, his excellent experimental technique, and the high standards he set for himself and others in every aspect of scientific research, were an inspiration to his students and colleagues. As R.F. Mehl Professor Emeritus at Carnegie Mellon University, Hub pursued his passion for phase transformations until his passing in December 2005, not long after the PTM2005 conference. The PTM conference series will honor Hub's many contributions to solid-solid phase transformations, and in particular to his support of students and young colleagues in the field, by offering the "Aaronson Award", an award to be given every PTM conference to an outstanding graduate student or young researcher in recognition of his/her exceptional contribution to the physical metallurgy of phase transformations.

### **Hillert-Cahn Award**

The Hillert-Cahn lectureship was instituted in 2010 in recognition of the outstanding contributions of John Cahn and Mats Hillert to the science of phase transformations in solid materials. It is awarded to a leading practitioner of the discipline at each PTM conference on recommendation of the organizing committee, and in consultation with Mats Hillert and former recipients.

Comment on the contributions of Mats Hillert and John Cahn:

Mats Hillert and John Cahn first made their presence widely felt in the 1950's with seminal publications: a wide-ranging contribution on the effects of interface curvature on phase transformations by Mats [1]; and a series of highly original papers by John with John Hilliard on the free energy of non-uniform solutions [2,3,4]. These and their many subsequent contributions played a major role in shaping the discipline. They each possess great breadth of interest and depth of insight; in addition to hosts of other honors, each has had a volume published of his selected works [5,6]. Without the contributions of Mats Hillert and John Cahn, the science of phase transformations would be a quite different and significantly diminished discipline.

1. Mats Hillert, *Jernkont. Ann.*, vol. 141, 1957, p. 11.
2. J. W. Cahn, J. E. Hilliard, *J. Chem. Phys.*, vol. 28, 1958, p. 258.
3. J. W. Cahn, *J. Chem. Phys.*, vol. 30, 1959, p. 1121.
4. J. W. Cahn, J. E. Hilliard, *J. Chem. Phys.*, vol. 31, 1959, p. 688.
5. "The selected works of John. W. Cahn", eds. W. Craig Carter, William C. Johnson, TMS, Warrendale, PA, 1998.
6. "Thermodynamics and phase transformations: the selected works of Mats Hillert", eds. John Ågren, Yves Bréchet, Christopher Hutchinson, Jean Philibert, Gary Purdy, EDP publishers, France. 2006.

#### **Previous Recipients:**

2010 - Gary R. Purdy, McMaster University, Canada

2015 - Peter Voorhees, Northwestern University, United States of America

## Registration

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### Registration

- ✧ Registration Deadline for Authors March 1, 2020
- ✧ Early Registration Deadline for Participants April 1, 2020

### Fees

#### Authors

- ✧ **CNY 6000 (Regular)** **CNY 3800 (Student)**

- \*Notes:* 1) Each accepted paper will be published in the conference proceedings only if at least one author's registration fee is paid before **March 1, 2020**.
- 2) Oral or poster presentation will be arranged only if at least one author's registration fee is paid before **March 1, 2020**.
- 3) Students are requested to submit the copy of their student ID.

#### Participants

Registration Fee	Before April 1, 2020	After April 1, 2020 before June 15, 2020	On June 28, 2020
Regular Participants	CNY 6000	CNY 6500	CNY 7000
Retired Participants	CNY 3800	CNY 4300	CNY 4800
Students	CNY 3800	CNY 4300	CNY 4800

*\*Note: Students are requested to submit the copy of their student ID*

### Entitlement

#### Registration Fee covers:

Conference fee, All official documentation (abstract and technical program book, conference proceedings USB, etc.), Welcome Reception on Monday, Banquet on Thursday, Daily Coffee Break, Lunch buffet on Monday, Tuesday and Thursday, Name badge

### Method of Payment

#### 1. Online Payment

Through the conference online payment , all payments could be made in CNY by credit card.

## 2. Bank Transfer

Please transfer the registration fee to the following bank account, and specify with “PTM2020, Registration No.”. A copy of remittance certificate is requested to send to the conference secretariat or submit to the conference website.

Name of Bank	INDUSTRIAL AND COMMERCIAL BANK OF CHINA BEIJING MUNICIPAL BRANCH WANG FU JING SUB-BRANCH OFFICE
Beneficiary and Account Holder	The Chinese Society for Metals
Address	NO.237 WANG FU JING STREET, DONG CHENG DISTRICT, BEIJING 100006 P.R.CHINA
SWIFT ADDRESS	ICBKCNBJBJM
Account Number	0200000709089116848

**\*Notes:** 1) The Check will not be accepted

2) The registration fee doesn't include the bank charge.

3) The receipt will be provided at the registration desk during the conference.

## 3. Payment in CNY at the Registration Desk

Attendees are requested to pay by credit card in CNY on the registration day.

## Cancellation

Refunds cannot be given if cancellations received after June 15, 2020. Substitutions can be accepted at any time.

Please indicate the bank, branch and account number clearly to which the refund should be sent, and the refund will be made after the conference.

Cancellation	Refund
Before June 15, 2020	80%
After June 15, 2020	No refund (Conference proceedings will be sent to the authors after the conference)

## **Exhibition, Workshop & Sponsorship Opportunities**

As the integral elements of the event, PTM2020 will feature the exhibition and workshop that will enable excellent exposure for company products, technologies, innovative solutions or services. The exhibition and workshop will be organized near the meeting room during PTM2020. The conference will offer an excellent opportunity for companies to maintain key contacts with customers and suppliers. It is also a unique platform for them to promote new products, outline services and highlight key achievements.

Companies will be able to reinforce their participation and enhance their corporate identification by taking advantage of the benefits offered to them as sponsors of the conference.

If you would like to join the exhibition, workshop or sponsorship, please contact with the Conference Secretariat .

## About Xi'an

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Together with Athens, Cairo and Rome, Xi'an is among the four major ancient civilization capitals of the world. It is on the natural westward land route out of China into Central Asia, the starting point and terminus of the Silk Road, which brought the city material wealth as well as religious and cultural melting for over a thousand years.

Surviving monuments open a window to this ancient city. The short-lived totalitarian state of Qin Shihuang is mirrored in the awe-inspiring massed terra-cotta armies of the Terracotta Warriors. The influence of Buddhism is clear from the Wild Goose Pagoda, a chamber for the translation of the Buddhist scriptures by then widely renowned Master Xuan Zang, who returned to China in 645 after 15 years of travel across India and central Asia. Evidence of the flourishing trade along the Silk Routes may be found in the Shaanxi History Museum and Famen Temple. Another reminder of the enduring legacy of the Silk Road is the Great Mosque of Xi'an, presenting a strong Muslim minority, whose faith remains unchanged although their architecture is a mixture of Chinese design and western Islamic tradition.

