

Conference Program for Thermag IV

Baotou, August 23-27, 2010

1. LOCATION

Baotou Wanhao Hotel, Baotou, Meeting room, Hall A and Hall B, 3rd floor

2. TIME

August 23-28, 2010

3. CONFERENCE PROGRAMME

Monday 23 August

9:00~22:00 Registration (In the lobby of Wanhao International Hotel)
18:30~21:30 Welcome reception

Tuesday 24 August

8:30~10:00 Opening ceremony
8:30~8:40 Prof. Dr. **Zengqi Zhao**
Director of Baotou Rare Earth Research Institute, Baotou, China
Welcome address of organizational committee
8:40~8:55 Mr. **Didier Coulomb**
Director of the International Institute of Refrigeration, IIF-IIR, Paris, France
The International Institute of Refrigeration and magnetic refrigeration
8:55~9:15 Dr. **Bingli ZHOU**
Chairman of Baotou Iron & Steel (Group) Company
9:15~9:35 Mr. **Huercha**
Mayor of Baotou Municipal Government
9:45~10:00 Group photo of conference attendees
10:00~10:30 Coffee break and poster presentation
10:30~11:55 Conference presentations

Chairperson: Prof. Dr. **Sergio Gama**, Prof. Dr. **Yi Long**

10:30~11:15 **Keynote speaker-1:** Prof. Dr. **Ekkes Brueck**,
Faculty of Applied Sciences, Delft University of Technology, Netherlands
Materials for room temperature magnetic refrigeration
11:15~11:35 Oral-1: Dr. **Simone Fabbrici**
IMEM – CNR, v.le G. P. Usberti 37/A I-43100 Parma, Italy
Tuning sign and intensity of magnetocaloric effect by Co doping NMG alloys
11:35~11:55 Oral-2: Dr. **V.V. Koledov**

Institute of Radioengineering and Electronics of RAS, Russia
Magnetocaloric effect in ribbon samples of Heusler alloys Ni - Mn – M
(M = In, Sn)

11:55~13:30 Lunch

13:30~18:10 Conference presentations

Chairperson: Prof. Dr. **Ekkas Brueck**, Prof. Dr. **Fengxia Hu**

13:30~14:05 **Invited speaker- 1:**

Prof. Dr. **Vasiliy Buchelnikov**

Chelyabinsk State University, Chelyabinsk, Russia

Magnetocaloric effect in Ni-Mn-X (X=Ga, In) Heusler alloys

14:05~14:25 Oral-3: Prof. Dr. **Yungui Chen**

Sichuan University, China

The high-temperature phase transition of LaFe_{13-x}Si_x

14:25~14:45 Oral-4: Prof. **Ramon Burriel**

Zaragoza University, Spain

Comparison of direct and indirect determinations of magnetocaloric parameters in the weakly hysteretic compounds LaFe_{13-x}Si_x

14:45~15:05 Oral-5: Mr. **Cristiano da Silva Teixeira**

Florianópolis, SC, Brazil

LaFe_{13-x}Si_x compounds synthesized by calciothermic reduction-diffusion

15:05~15:25 Oral-6: Dr. **Yongbai Tang**

Sichuan University, China

The hydrogenation behaviors of LaFe_{13-x}Si_x compounds

15:25~15:55 Coffee break and poster

15:55~16:30 **Invited speaker- 2:**

Oral-7: Dr. **Matthias Katter**

Vacuumschmelze GmbH & Co. KG, Hanau, Germany

Sintering behavior and thermally induced decomposition and recombination (TDR) process of LaFe_{13-x-y}Co_xSi_y alloys

16:30~16:50 Oral-8: Prof. Dr. **Andrej Kitanovski**

Faculty of Mechanical Engineering, Ljubljana, Slovenia

Rotary magnetic chillers and their assessment

16:50~17:10 Oral-9: Dr. **Qingzhen Huang**

NIST Center for Neutron Research National Institute of Standards and Technology, USA

Neutron diffraction-a powerful technique for studying the crystal structure and magnetic properties in magnetocaloric materials

17:10~17:30 Oral-10: Dr. **Mohamed BALLI**

University of Applied Sciences of Western Switzerland, Institute IGT, Yverdon-les-Bains, Switzerland

A pre-industrial magnetic cooling system for room temperature application

17:30~17:50 Oral-11: Dr. **Xichun Zhong**

School of Materials Science & Engineering, South China University of Technology, Guangzhou, Guangdong, China

Effects of Ni, Si and Cr doping on the magnetic refrigerant metal Gd

17:50~18:10 Oral-12: Dr. **Xihui Wang**

School of Mechanical and Automotive Engineering, South China University of Technology, China

Experimental research on the performance of the room temperature magnetic refrigeration under different temperature

19:00~21:30 Special banquet with local song and dance

Wednesday 25 August

08:15~12:00 Conference presentations

Chairperson: Prof. Dr. **Afef Kedous-Lebouc**, Dr. **Naoki Hirano**

8:15~9:00 **Keynote speaker- 2:** Prof. Dr. **Vitalij Pecharsky**

Ames Laboratory, Iowa State University, USA

Advanced magnetocaloric materials

9:00~9:20 Oral-13: Dr. **Steven Russek**

Aeronautics Technology Center Aeronautics Corporation of America

The performance of a rotary magnet magnetic refrigerator with layered beds

9:20~9:40 Oral-14: Dr. **Dingwei Lu**

Nanjing University, China

The cooling capacity of hybrid regenerative cycle

9:40~10:00 Oral-15: Dr. **Christian Bahl**

Risø National Laboratory for Sustainable Energy, Technical University of Denmark

Design concepts for a continuously rotating active magnetic regenerator

10:00~10:30 Coffee break and poster

10:30~11:05 **Invited speaker- 3:** Prof. Dr. **Atila Yucel**

Mugla University, Faculty of Sciences and Arts, Department of Physics, Mugla, Turkey

The systems engineering approach in developing magnetic cooling at room temperature systems

11:05~12:00 Meeting of the IIR Working Party on Magnetic Refrigeration

Chairman: Prof. Dr. **Peter W. Egolf**,

Co-chairman: Ass.-Prof. Dr. **Andrej Kitanovski**

12:00~13:30 Lunch

13:30~17:30 Sightseeing (Tour in Singing Sand Ravine)

Thursday 26 August

08:15~12:05 Conference presentations

Chairperson: Prof. Dr. **Vitalij Pecharsky**, Prof. Dr. **O.Tegus**

8:15~9:00 **Keynote speaker- 3:** Prof. **Roland Grössinger**

Technische Universität Wien, Institut für Festkörperphysik, Wien, Austria
Magnetocaloric versus thermoelectric effect – new systems for thermal applications

9:00~9:20 Oral-16: Dr. **Ming Yue**

College of Materials Science and Engineering, Beijing University of Technology, China

Effect of annealing on the structure and magnetic properties of $Mn_{1.2}Fe_{0.8}P_{0.76}Ge_{0.24}$ alloy

9:20~9:40 Oral-17: Prof. **Ryszard Zach**

Institute of Physics, Cracow University of Technology, Cracow, Poland

Neutron diffraction and magnetocaloric effect studies of $MnFe_{1-x}Co_xP$ series of solid solutions

9:40~10:00 Oral-18: Dr. **Lian Zhang**

Delft University of Technology, Netherlands

A fast method to evaluate magnetocaloric effect in first-order $MnFe(P,As)$ compounds

10:00~10:30 Coffee break and poster

10:30~11:05 **Invited speaker- 4:** Prof. Dr. **Bingfeng Yu**

Xi'an Jiaotong University, Xi'an, China

Future research focuses on room temperature magnetic refrigeration

11:05~11:25 Oral-19: Mr. **Nguyen Thanh Trung**

Fundamental Aspects of Materials and Energy, Faculty of Applied Sciences, Delft, Netherlands

From single- to double-first-order magnetic phase transition in magnetocaloric $Mn_{1-x}Cr_xCoGe$ compounds

11:25~11:45 Oral-20: Mr. **Huu Dung Nguyen**

Fundamental Aspects of Materials and Energy, Faculty of Applied Sciences, Delft, Netherlands

High performance room-temperature magnetic refrigerant

11:45~12:05 Oral-21: Mr. **Gaofeng Wang**

Zaragoza University, Spain

Direct and indirect determination of the giant magnetocaloric effect in $Mn_{1-x}Co_xAs$ compounds

11:45~13:30 Lunch

13:30~18:35 Conference presentations

Chairperson: Prof. **Ramon Burriel**, Dr. **Christian Bahl**

13:30~14:05 **Invited speaker- 5:** Dr. **Naoki Hirano**

Chubu Electric Power, Nagoya, Japan

Project of development on room temperature magnetic refrigerator in Japan

- 14:05~14:25 Oral-22: Prof.Dr. **Sergio Gama**
University Federal of São Paulo, Brazil
Tesla Type Thermomagnetic motor powered by water heated using solar energy
- 14:25~14:45 Oral-23: Dr. **Jianghong Wu**
School of Mechanical and Automotive Engineering, South China University of Technology, Guangzhou, China
Experimental and numerical study on rotary active magnetic regenerator for room-temperature application
- 14:45~15:25 Oral-24: Mr. **Julien Roudaut**
Grenoble Electrical Engineering Laboratory, Grenoble, France
1. Comparison of magnetic field sources for magnetic refrigeration at room temperature
2. Numerical analysis of an active magnetic regenerator – a parametric study
- 15:25~15:55 Coffee break and poster
- 15:55~16:15 Oral-25: Mr. **Kaspar Nielsen**
Department of Mechanical Engineering, Technical University of Denmark, Risø National Laboratory for Sustainable Energy
Numerical modeling of graded active magnetic regenerators
- 16:15~16:35 Oral-26: Mr. **Min Liu**
Xi'an Jiaotong University, Xi'an, China
Two-dimension porous medium model for reciprocating active magnetic regenerator of room temperature magnetic refrigeration
- 16:35~16:55 Oral-27: Dr. **Kurt Engelbrecht**
Risø National Laboratory for Sustainable Energy, Technical University of Denmark, Denmark
An experimental study of passive regenerator geometries
- 16:55~17:15 Oral-28: Mr. **Jaka Tušek**
University of Ljubljana , Faculty of Mechanical Engineering, Ljubljana, Slovenia
A numerical optimization of a packed bed AMR
- 17:15~17:55 Oral-29: Mr. **Sandro Schopfer**
Dept. of Mechanical Engineering, Institute for Integrated Energy Systems, University of Victoria, Canada
Heat transfer and viscous losses in micro-channel passive regenerators. (Part I - apparatus and experimental results, Part II – parameter extraction)
- 17:55~18:15 Oral-30: Mr. **Jaime Lozano**
Department of Mechanical Engineering, Federal University of Santa Catarina (UFSC), Brazil
Design and preliminary results of a Gd-based linear reciprocating active magnetic regenerator test apparatus
- 18:15~18:35 Oral-31: Dr. **Luana Caron**
Delft University of Technology

Friday 27 August

8:15~9:00 Conference presentations

Chairperson: Prof. Dr. **Roland Grössinger**

8:15~9:00 **Keynote speaker- 4:** Prof. Dr. **Feng-xia Hu**

State Key Laboratory of Magnetism, Institute of Physics & Center for Condensed Matter Physics, Chinese Academy of Sciences, Beijing, China

Optimization of La(Fe,Si)₁₃-based magnetocaloric materials

9:00~9:20 Oral-32:Dr. **Konstantin Skokov**

Leibniz Institute for Solid State and Materials Research Dresden, Institute for Metallic Materials, Dep. Magnetism and Superconductivity

Novel preparation and characterization of La(Fe,Si)₁₃-based magnetocaloric compounds

9:20~12:00 **FORUM ON THE APPLICATION OF ROOM TEMPERATURE MAGNETIC REFRIGERATION**

Chairperson: Dr. **Steven Russek**

9:20~9:35 Oral-33: Prof. Dr. **O.Tegus**

Inner Mongolia Key Laboratory for Physics and Chemistry of Functional Materials, Inner Mongolia Normal University, China

The magnetocaloric effect in MnFe(P,Si) compound and its possible applications

9:35~9:50 Oral-34: Dr. **Neil Wilson**

Camfridge Ltd., UK

Commercializing Magnetic Refrigeration

9:50~10:05 Oral-35: Dr. **Alexander Barcza**

Vacuumschmelze GmbH & Co. KG, Germany

Fast measurement rig for the adiabatic temperature change of magnetocaloric materials utilizing infra-red sensors

10:05~10:35 Coffee break and poster

10:35~10:50 Oral-36: Dr. **Steven Russek**

Director Systems Engineering & Director Astronautics Technology Center, Astronautics Corporation of America

1. An Efficient, Green Compact Cooling System Using Magnetic Refrigeration

2. Inter-Laboratory Comparison of the Determination of the Magnetocaloric effect (DS) through Magnetization and Calorimetric Methods

10:50~11:05 Oral-37: Mr. **Hongwei Yan**

Baotou Research Institute of Rare Earths (BRIRE), China

Project of R&D on the technology of room temperature magnetic refrigeration in BRIRE

11:05~12:00 Discussion

12:00 ~13:30 Lunch

13:30~14:30 Closing remarks

14:30~16:00 Technical tours

- 1) Rare Earth Exhibition in the Baotou Research Institute of Rare Earths, Baotou
- 2) Planned tour to Inner Mongolia Baotou Steel and Rare Earth Magnetic Materials Company

Saturday 28 August (Optional)

Sightseeing Genghis Khan Mausoleum