

TEMP ²⁰⁰⁸
BEIJING

Conference Program

International Conference on
Temperature and Thermal
Measurements

Oct. 20~23, 2008
Beijing, China

NIM • CSM

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Conference Meals and Social Program

Sunday, Oct 19

13:30-17:00 Registration Desk (Crowne Plaza Hotel)

Monday, Oct, 20-TEMPBEIJING2008 DAY 1

7:00-8:30 Breakfast (Crowne Plaza Hotel or Guizhou Mansion)

8:30-11:00 Registration Desk (Crowne Plaza Hotel)

10:30-11:00 Coffee Break

12:30-13:30 Lunch (Crowne Plaza Hotel)

15:00-15:30 Coffee Break

18:00-20:00 Welcome Dinner

Tuesday, Oct, 21-TEMPBEIJING2008 DAY 2

7:00-8:30 Breakfast (Crowne Plaza Hotel or Guizhou Mansion)

10:30-11:00 Coffee Break

12:30-13:30 Lunch (Crowne Plaza Hotel)

15:00-15:30 Coffee Break

Wednesday, Oct, 22-TEMPBEIJING2008 DAY 3

7:00-8:30 Breakfast (Crowne Plaza Hotel or Guizhou Mansion)

10:30-11:00 Coffee Break

12:30-13:30 Lunch (Crowne Plaza Hotel)

13:30-17:00 Lab Visit (He Ping Li)

Thursday, Oct, 23-TEMPBEIJING2008 DAY 4

7:00-8:30 Breakfast (Crowne Plaza Hotel & Guizhou Mansion)

9:00-18:00 City tour and Lab Visit (Second Experimental Base of NIM)

18:00-20:00 Closing Banquet (Second Experimental Base of NIM)

Program at a glance

TempBeijing2008					
	October 19 (Sun)	October 20(Mon)	October 21(Tue)	October 22(Wed) Changping	October23 (Thurs)
9:00-9:30		Opening	Parallel Session	Parallel Poster	City tour and Lab Visit (Second Experim- ental Base of NIM)
9:30-10:30		Invited talk			
10:30-11:00		Coffee break	Coffee break	Coffee break	
11:00-12:30		Invited talk	Parallel Session	Parallel Session	
12:30-13:30		Lunch	Lunch	Lunch	
13:30-15:00	Registr- ation Desk	Plenary Session	Parallel Session	Lab tour(He Ping Li)	
15:00-15:30		Coffee break	Coffee break		
15:30-17:00		Plenary Session	Parallel Session		
18:00		Welcome Dinner			Closing Banquet

Registration Desk (Crowne Plaza Hotel)

Sunday, October 19th

13:30 – 17:00

Monday, October 20th

8:30 – 11:00

Monday, October 20th – TEMPBEIJING Day 1

	Conference Chamber
9:00 – 9:30	Opening
9:30 – 10:30	1. Keynote I
11:00 – 12:30	2. Keynote II
13:30 – 15:00	3. Plenary Reports I
15:30 – 17:00	4. Plenary Reports II

Tuesday, October 21st – TEMPBEIJING Day 2

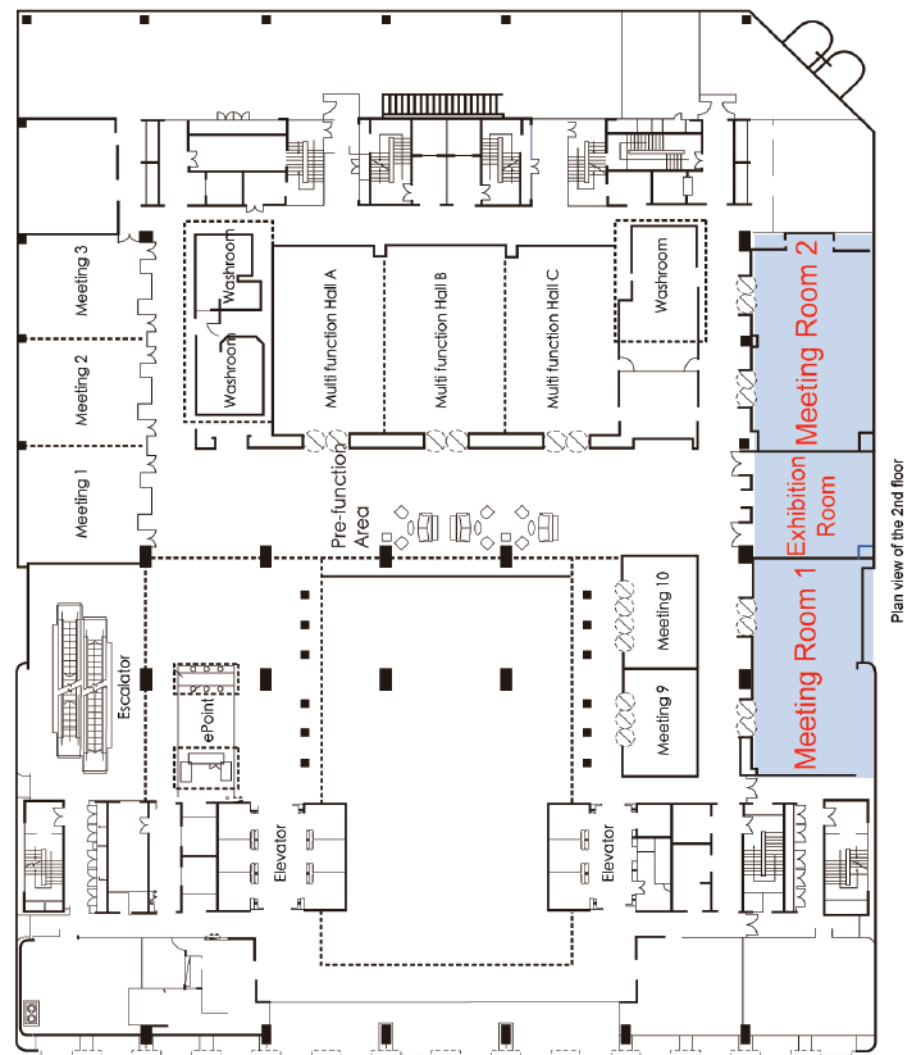
	Meeting Room 1	Meeting Room 2
9:00 – 10:30	5. Fixed Points	6. Eutectics I
11:00 – 12:30	7. Thermodynamic Thermometry	8. Thermocouples and Uncertainties
13:30 – 15:00	9. Low Temperature	10. Radiation Thermometry I
15:30 – 17:00	11. Thermal Measurement	12. Radiation Thermometry II

Wednesday, October 22nd – TEMPBEIJING Day 3

	Meeting Room 1	Meeting Room 2
9:00 – 10:30	Poster Session I	Poster Session II
11:00 – 12:30	13. Contact Thermometry	14. Eutectics II
13:30 – 17:00	Visit (He Ping Li)	

Thursday, October 23rd – TEMPBEIJING Day 4

Lab Visit (Second Experimental Base) and City Tour



Scientific Program

Monday, Oct 20

Session 1 Keynote I

Chair: Yuning Duan

Opening Ceremony

ITS-90 Will be the last International Temperature Scale

T.J.Quinn

New Definition of the Kelvin

Joachim Fischer

Session 2: Keynote II

Chair: Joachim Fischer

Recent Development of the National Institute of Metrology (NIM)

Yuning Duan

Realizing the Benefits of Improvements in High Temperature Metrology

Graham Machin

Acoustic Thermometry: Past, Present, and Future

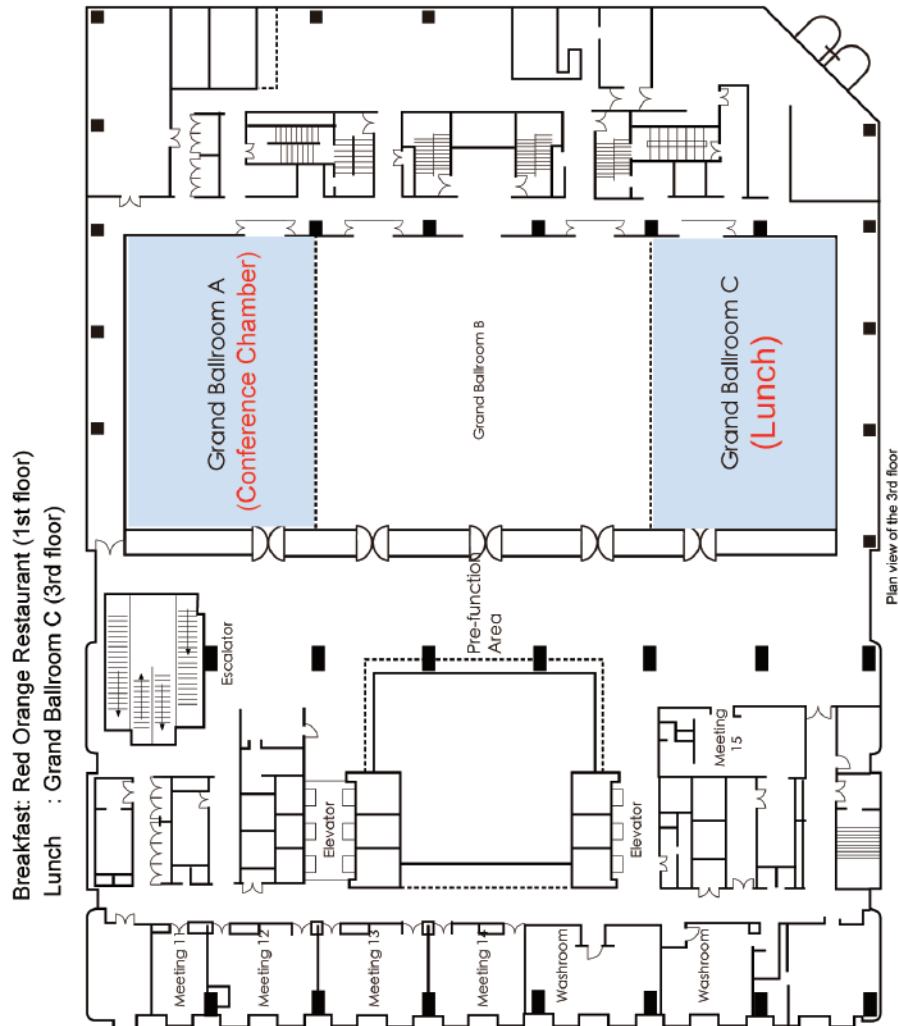
Michael Moldover

Session 3 Plenary Reports I

Chair: Graham Machin

Uncertainty Analysis and Maintenance of the NIST Detector-based Temperature Scale

H. W. Yoon, C. E. Gibson, G. P. Eppeldauer, A. W. Smith, S. W. Brown, K.



R. Lykke

Toward the Redetermination of Boltzmann Constant by Cylinder Resonance of Gas

Zhang J T , Lin H , Duan Y Y , Feng X J

The evitherm Society plc: a Renewed Vision and New Life for the Virtual Institute for Thermal Metrology

F Pavese, J-R Filtz, J Fischer, W Hohenauer, P Leparlouer, V Mathot, P Nesvadba, I Severn

Linking the Results of EURAMET.T-K7 and CCT-K7 Key Comparisons

A. Peruzzi , A. vd Veen , D. del Campo Maldonado , P.P.M. Steur , E. Renaot , J. Bojkovski , M. Dobre , J. Ranostaj , E. Filipe , A. Kartal Dogan , A. Pokhodun

Session 4 Plenary Reports II

Chair: Michael Moldover

Stability and robustness tests on Co-C, Pt-C and Re-C cells: the first results

M. Sadli , Y. Yamada , T Wang , H.W. Yoon , P. Bloembergen , G. Machin

Calibration Facilities for Radiation Thermometry at NIM

YUAN Zundong, WANG Tiejun, WANG Jinghui, BAI Chengyu, LU Xiaofeng

Investigating the Behaviour of Industrial Platinum Resistance Thermometers from 13.8 K to 273.16 K

K. D. Hill

TEMPMEKO&ISHM conference Introduction

Janko Drnovsek

Tuesday, Oct 21

Session 5 Fixed Points

Chair: Franco Pavese

Improved Characterization and Certification Procedure for Fixed-Point Cells

Steffen Rudtsch , Martin Fahr

Effects of Impurities on the Melting Curve of the Aluminium Fixed Point

David I Head, Patchariya Petchpong, Joe Y. H. Au

Long-Term Stability of a Metal Cased Freezing Point of Aluminum Cell

Mingjian Zhao, Rong Ding, Deming Chen, Darnell Cabana

ITS-90 Inconsistency for standard platinum resistance thermometers in the sub-range 0°C to 419.527°C

Sun. Jianping , D. Yuning , K. Zhiru , Zhang. Jintao , Chen. Yuefei

Impurity Effects on the Tin Fixed-Point Temperature

Patchariya Petchpong, David I Head, Joe Y. H. Au

Session 6 EutecticsI

Chair: Yoshiro Yamada

Investigation of the Long Term Stability of the Co-C and Pt-C

Tiejun Wang , Chengyu Bai , Wei Dong

Developments around the Co-C eutectic point at LNE-INM/Cnam

F. Bourson, S. Briaudeau, B. Rougié, M.Sadli

Metal-Carbon Eutectic Cells for Platinum/Palladium Thermocouple Calibrations

Ronan Morice , Hideki Ogura , Jacques-Olivier Favreau , Thierry Deuze , Pascal Ridoux

New Design of Eutectic Fixed-Point Cell for Simultaneous Contact and Non-contact Measurements

Jovan Bojkovski, Miha Hiti, Janko Drnovšek

Session 7 Thermodynamic Thermometry

Chair: Howard Yoon

Waveguides and remote transducers for acoustic

Hong Lin, Keith A. Gillis, Michael R. Moldover, Jintao Zhang

Acoustic Measurements of the Boltzmann Constant

Michael Moldover

Further measurement of the melting point of gallium by Johnson noise thermometry

Zhang J T , Xue S Q , Sun J P, Zheng W

The Opening Perturbation on Acoustic Cylinder Resonance

Hong Lin , Keith A. Gillis , Jintao Zhang

Session 8 Thermocouples and Uncertainties

Chair: Georges Bonnier

Cycle temperature influences on thermocouples type N

Karzhavin V.A. , Karzhavin A.V

Development and Applications of The WRe Temperature Sensor

Laura Wang , Kuihan Wang

On the Uncertainty in the Temperature Drop across the Backwall of High-Temperature Fixed Points

P.Castro , P.Bloembergen, Y.Yamada , M.A. Villamanan, G. Machin⁴

Long Term Drift Characterisation of Noble Metal Thermocouples Using High Temperature Fixed Points

Jonathan V. Pearce , Graham Machin , Trevor Ford , Steve Wardle

Evaluation and Expression of Uncertainty in the Calibration of Infrared Total Radiation Pyrometer against a Noble Metal Thermocouple in the range 500°-1000 °C Using a Blackbody Source

Y.P. SINGH

Session 9 Low Temperature

Chair: David Head

Last Developments in Accurate Cryogenic Thermometry

Franco Pavese

A proposal for calibrate rhodium-iron resistance thermometer by few-point schemes in the range 0.5K to 25K

Lin Peng

New cryostat for long stem thermometer calibration in Argon triple point

Miruna Dobre , Yves Hermier

Recent Progress in the Development of Precision Rh-0.5%atFe Thermometers of Chinese Production

Peng Lin , Xing Wei Li, Szymrka-Grzebyk, L. Lipinski, F. Pavese

Session 10 Radiation Thermometry I

Chair: Pieter Bloembergen

Automated Evaluation of Blackbody Homogeneity With a

Radiation Thermometer and an Automated Calibration Bench with 5 Degrees of Freedom

Igor Pušnik, Andraž Miklavc , Valentin Batagelj , Jovan Bojkovski

Long term drift of radiation thermometers due to interference filters

Wang Li

The Imaging Radiation Thermometry

Cheng Xiaofang , Yang Zangjian , Fu Tairan , Wang Luping

Development of 2 μm InGaAs radiation thermometer

Fumihiko Sakuma, Laina Ma

Session 11 Thermal Measurement

Chair: Jintao. Zhang

Low-temperature Heat Capacity and Standard Thermodynamic Functions of Sodium Pyroantimonate

Zhi-Cheng Tan, Quan Shi, Jun-Ning Zhao, Li-Xian Sun

Study on influences of some factors on the test of periodic heat flow method

XU Xin , CHEN Xiao-ling , ZHOU Jie-min

Reliability of Thermal Imaging in Calculation of Energy Efficiency of Buildings

Igor Pušnik

Experimental System for pvT(x) Properties and Vapor Pressure Measurements of 1,1,1,3,3-Pentafluoropropane

FENG Xiao-juan , FANG Jin , LIN Hong , DUAN Yuan-yuan

Implement of Nonlinearity Correction for Temperature Frequency Characteristic of Quartz Tuning Fork Temperature Sensor

Jun Xu , Bo You , Hongli Wu , Lihua Hu

Session 12 Radiation Thermometry II

Chair: Wang Li

Emissivity Compensated Radiation Thermometry of Silicon Wafers during the Growth of Oxide Films

Tohru Iuchi , Atsushi Gogami

Optimization Analysis of Multi-band Pyrometry

Tairan Fu , Xiaofang Cheng , Zangjian Yang

Development of a changeable-aperture blackbody for low temperature standards

Hsin-Yi Ko , Bor-Jiunn Wen

The Study of Objective Lens for Measuring the Size-of-Source Effect in Radiation Thermometer

Lu Xiaofeng , Yuan Zundong , Liu Jie

Tuesday, Oct 22

Session 13 Contact Thermometry

Chair: Ken Hill

An Automated Ice Mantle Maker

YAN Xiaoke , ZHANG Jintao, MA Chongfang , DUAN Yuning

Technology of high precision quartz tuning-fork temperature sensor design based on resonant principle

Jun Xu , Bo You, Lei Ma

The Immersion Profile in a Triple Point of Water Fixed Point Cell for Different SPRTs of the Same Type

Jovan Bojkovski , Valentin Batagelj

The Research of the Auto-test System of Liquid-in- Glass Thermometer Based on Image Recognition

Huang Tao, Xing Zhi-hong, Li Hong-wei, Dong Liang, Sun Yun-fei, Liu Xin

Contribution for a very accurate determination of the water vapor pressure curve

E. GEORGIN , M. ELGOURDOU , C. MARTIN

Session 14 Eutectics II

Chair: Mohamed Sadli

Long-Term Stability of Metal-Carbon Eutectic Fixed-Point Cells

Y. Yamada , Y. Wang

Experimental research on the melting behavior of Pt-C eutectic fixed point affected by thermal history

Wei Dong, Tiejun Wang, Chengyu Bai, Yuanyuan Duan

On the dependence of the structure of eutectic Fe-C on the impurity content and on freezing and annealing conditions in relation to the associated variations in freezing and melting behaviour: Experiments

W. Zheng , P. Bloembergen, Y.Yamada, Y. Wang, T.Wang

A Robust Pd-C Fixed-point for Calibration of Thermocouples

Jonathan Pearce, Graham Machin

Poster Session I

1 . Influences of Water Purification on the Triple Point Temperature of Water

YAN Xiaoke, WU Helian, ZHANG Jintao 2 MA Chongfang, Duan Yuning

2 . Equation of Propagation of Uncertainty of Multivariate non-linear Interpolation with Some Applications to Temperature Measurement

Kang Zhi-Ru, Fu Guang-Sheng

3 . Evidence of Furnace-related Aluminium Cell Contamination

E. Renaot

4 . Development of a thermoelectric scanning system for Type R thermocouples with non pressure controlled heat-pipes

Hiroyasu SATO

5 . Investigation of Reproducibility of Freezing Point of Tin

Kazuaki Kodaira

6 . Realization of Zinc Fixed Point Cell in NIMT

C.Yaokulbodee, U.Norranim, E.Puttitwong

7 . Study of Pt/Pd thermocouples in the temperature range 800 oC up to 1500 oC at the National Institute of Standards NIS-Egypt

M. G. Ahmed and K. Ali

8 . Thermal Radiation Effect on SPRT-Measurements at the Aluminium Point

Martin Fahr, Steffen Rudtsch

9 . Study on diminishing periodic interference in measurements with laser flash method

Guan Weiq, Zhang J T, Liu J Q, Chen Y F, Sun J P

10 . Improvement on Thermal Diffusivity Measurement
Repeatability of Laser Flash Method

Jianqing Liu , J P Sun , J T Zhang , Y F Chen

11 . The study of a new pattern portable thermostatic bath

Jiong Zhang Huatai Xu Xingye Xu

12. Thermal Assessment Of Fixed-Point Cell Design By
Numerical Modelling

G. Failleau, V. Le Sant, R. Morice, P. Ridoux

13. The Study of Metadata-based Thermometry Data Sharing
Platform

Shi Zhenshan , Song Yanyan , Chu Wei

Poster Session II

1 . Investigation of the Radiance Uniformity across the Aperture
of High-Temperature Fixed-Points using a camera system

Klaus Anhalt, Jürgen Hartmann, Detlef Lindner, Udo Krüger

2 . Quantifying the Temperature Effects of Imperfectly Formed
Metal-Ingots in High Temperature Fixed Point Crucibles

*Graham Machin , Pablo Castro , Andrew Levick , Miguel Ángel
Villamañán*

3 . Automatic Characterization of Thermoelectric Homogeneity

Jonathan V. Pearce

4 . Developments of Infrared Radiation Thermometers

S. F. Tsai , G. W. Lee, S.Y. Wang, M. C. Luo

5 . 2-D mathematical modeling for the dilute region of CFBB

Xiaohui Zhang, Baiqian Liu

6 . Statistical Methods in Blackbody Sources Compare
Calibration

WANG Jing-hui, YUAN Zun-dong

7 . Study on Precise Temperature Control of Boiler Based on
Neural Network PID

Honglian Li, Xiaoting Li, Jinhai Li, Chao Li

8 . The gas controlled heat-pipe in metrology

M. Elgourdou , E. Georgin , C. Martin

9 . Development of a Calibration Technique for Laser
Interferometric Thermometry of Semiconductors and Dielectrics

A.N.Magunov, B.A.Lapshinov, T.A.Evdokimova, I.V.Chernyshov

10 . The Spectral Pyrometry of Gas Discharge Plasmas

N.K.Berezhetskaya 1, I.A.Kossyi 1, A.N.Magunov 2

11 . Spectral Pyrometry of Wide Band-Gap Materials Within the Region of Transparency

S.I.Gritsinin , I.A.Kossyi , A.N.Magunov

12 . Measurement uncertainties of Multi-band Pyrometry

Tairan Fu , Zangjian Yang , Xiaofang Cheng

Exhibitor Directory

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