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1. Professor William A. Wakeham
2. Professor Marc J. Assael
3. Professor Alfred Leipertz
4. Professor Akira Nagashima
5. Professor Carlos A. Nieto de Castro
6. Professor Dr. Harold A. Oye
7. Professor Jan V. Sengers

• **IATP Members**

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2. Dr Antoine Baylaucq
3. Dr Eckard Bich
4. Professor Christian Boned
5. Dr Robert F. Berg
6. Dr Ali Boushehri
7. Prof. Fernando Caetano
8. Dr John H. Dymond
9. Professor Joao M.N.A. Fareira
10. Professor Josefa Fernandez
11. Dr.-Ing. Andreas Froeba
12. Dr Peter Gaal
13. Dr Guillaume Galliero
14. Dr Anthony Goodwin
15. Dr Peter S. van der Gulik
16. Dr. Ulf Hammerschmidt
17. Dr H.J.M. Hanley
18. Dr Robert Hellmann
19. Professor Ken R. Harris
20. Dipl.-Ing. Rolf Krauss
21. Dr Arno Laesecke
22. Dr Sam F.Y. Li
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29. Prof. Dr. Sergio E. Quinones-Cisneros
30. Dr Bernd Rathke
31. Professor Sung T. Ro
32. Dr Fernando J.V. Santos
33. Professor Yusuro Sato
34. Professor Dr.-Ing. Karl Stephan
35. Dr Daniela Stroe
36. Professor J.P. Martin Trusler
37. Professor Oled B. Tsvetkov
38. Professor A.A. Vasserman
39. Dr R.M. Velasco
40. Dr Velisa Vesovic
41. Professor Dr Eckhard Vogel
42. Professor Libor Vozar
43. Prof. Dr.-Ing. Stephan Will
44. Prof. Dr. Jochen Winkelmann
45. Prof. Jiangtao Wu
46. Dr Kemal Tusat Yucel

• **The Aims**

The International Association for Transport Properties (IATP) is a non-profit grouping of scientists devoted to the advancement of the transport properties of materials. In particular, the association is engaged in the preparation of representations of the transport properties that are of value to engineering process design, and to the description of natural processes in the environment where international collaboration and agreement is specially significant. These developments will be carried out in the context of the underlying science and with the intention of improving understanding.

IATP was formerly known as the Subcommittee on Transport Properties of the International Union of Pure and Applied Chemistry (1981 - 2001).

Further info at : <http://transp.cheng.auth.gr>

2001 - 2012 Chairman : Professor Sir W.A. Wakeham  
Secretary : Professor M.J. Assael

• **List of Scientific Meetings**

- |     |      |                                |
|-----|------|--------------------------------|
| 1.  | 2001 | Chalkidiki, Greece             |
| 2.  | 2002 | Imperial College, London, U.K. |
| 3.  | 2003 | Boulder, Colorado, U.S.A.      |
| 4.  | 2004 | Pau, France                    |
| 5.  | 2005 | Bratislava, Slovakia           |
| 6.  | 2006 | Boulder, Colorado, U.S.A.      |
| 7.  | 2007 | Istanbul, Turkey               |
| 8.  | 2008 | Pau, France                    |
| 9.  | 2009 | Boulder, Colorado, U.S.A.      |
| 10. | 2010 | Santiago de Compostela, Spain  |
| 11. | 2011 | Thessaloniki, Greece           |

• **Books Published (as STP/IUPAC)**

1. *Experimental Thermodynamics. Vol. III. Measurement of the Transport Properties of Fluids.*  
Eds. A. Nagashima, J.V. Sengers and W.A. Wakeham.  
Blackwell Scientific Publications (1991).
2. *Transport Properties of Fluids. Their Correlation, Prediction and Estimation.*  
Eds. J.H. Dymond, J. Millat and C.A. Nieto de Castro.  
Cambridge University Press (1996).

# 12th

## Meeting of the International Association for Transport Properties

(former Subcommittee on Transport Properties  
of IUPAC Commission I.2: Thermodynamics)



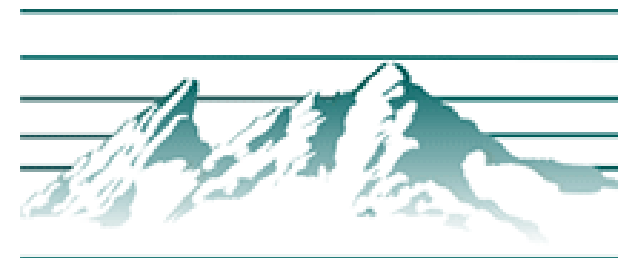
June 24<sup>th</sup>, 2012

Room 1B40 Engineering Center  
Engineering Building  
University of Colorado, Boulder

## Program

Local Organising Committee

Dr. Richard Perkins ([richard.perkins@nist.gov](mailto:richard.perkins@nist.gov))



- All presentations are informal and are followed by a discussion period.

## Sunday June 24<sup>th</sup>, 2012

09:30 Opening remarks.  
W.A. Wakeham (UK).

### Scientific Session A. Theoretical

09:40 Reference data for the density and viscosity of liquid cadmium, cobalt, gallium, mercury, indium, silicon, thallium, and zinc.  
M.J. Assael, I.J. Armyra (Greece), J. Brillo (Germany), S. Stankus (Russia), J. Wu (P.R. China), W.A. Wakeham (UK).

10:00 Recommended data for the density, viscosity and surface tension of C6mimTf2N. Revision of IUPAC project 2002-005-1-100.  
E. Langa, F.J.V. Santos, C.A. Nieto de Castro, M. Soledade C.S. Santos, A.M. Maynard (Portugal).

10:20 New international formulation for the thermal conductivity of H<sub>2</sub>O.  
M.L. Huber, R.A. Perkins, D.G. Friend, J.V. Sengers (USA), M.J. Assael, I.N. Metaxa (Greece), E. Vogel (Germany), K. Miyagawa (Japan).

10:40 Correlation of the thermal conductivity of toluene from the triple point to 1000 K and up to 1000 MPa.  
M.J. Assael, S.K. Mylona (Greece), M. Huber, R. Perkins (USA).

10:50 Correlation of the thermal conductivity of benzene from the triple point to 725 K and up to 500 MPa.  
M.J. Assael, E.K. Mihailidou, (Greece), M. Huber, R. Perkins (USA).

11:00 Coffee

### Scientific Session B. Experimental

11:20 Mutual diffusion in liquids with dissolved gases by dynamic light scattering (DLS).  
M.H. Rausch, A. Heller, T. Koller, A. Leipertz, and A.P. Fröba (Germany).

11:40 Rheology of heavy oils.  
S.E. Quinones-Cisneros, R.G. de la Torre Sánchez (Mexico).

12:00 Excess hard-sphere model for viscosity.  
J.P.M. Trusler, F. Ciotta, F. Ijaz, G. Maitland, V. Vesovic (UK).

12:20 Perfluoropolyether oils as candidates for the deepwater viscosity standard of 20 mPas at 260 °C and 240 MPa.  
H. Baled, R. Enick, W. Burgess, J. Jain, B. Morreale, Y. Soong, D. Tapiyal, Y. Wu, B. Bamgbade, M. McHugh, S. Bair, V. Krukoni (USA).

13:00 Lunch

### Business Session.

14:30 Announcements.

#### • Projects Concluded

1. Reference data for the density and viscosity of liquid antimony, bismuth, lead, nickel, and silver.  
M.J. Assael, A.E. Kalyva, K.D. Antoniadis, M. Banish, I. Egrý, J. Wu, E. Kaschnitz, W.A. Wakeham, High Temp. High Press. (in press)

2. Reference data for the density and viscosity of liquid cadmium, cobalt, gallium, mercury, indium, silicon, thallium, and zinc.  
M.J. Assael, I.J. Armyra, J. Brillo, S. Stankus, J. Wu, W.A. Wakeham, J. Phys. Chem. Ref. Data. (in press)

3. Correlation of the thermal conductivity of toluene from the triple point to 1000 K and up to 1000 MPa.  
M.J. Assael, S.K. Mylona, M. Huber, R. Perkins, J. Phys. Chem. Ref. Data 41: 023101:1-12 (2012).

4. Reviews of modern viscosity measurement techniques.  
A.H.R. Goodwin(USA), W.A. Wakeham(UK), M.J. Assael (Greece).

#### • Continuing Collaborative Projects

5. High-temperature, high-pressure viscosity standards.  
J.M.N.A. Fareleira, F. Caetano (Portugal), W. A. Wakeham, J.P.M. Trusler (UK), A.P. Froba, A. Leipertz, B. Rathke (Germany), K. Harris (Australia), A.R.H. Goodwin, A. Laesecke (USA), J. Fernandez (Spain), K. Schmidt (Canada), Chr. Boned (France)

6. Thermal conductivity of water/steam.  
M.J. Assael (Greece), E. Vogel, J. Millat (Germany), A. Nagashima (Japan), D. Friend, J.V. Sengers (USA)

7. Evaluation of the viscosity effect upon the vibrating U-tube densimeter.  
J.P.M. Trusler (UK) - Coordinator, J. Fernandez, M.J.P. Comunas, L. Lugo (Spain), Caetano, J.M.N.A. Fareleira (Portugal), A. Goodwin (USA), K. Harris (Australia), B. Rathke (Germany), S. Quinones-Cisneros (Mexico).

8. Density and viscosity of liquid metal eutectics (Pb+Sn, Pb+Si, and Al+Si).  
M.J. Assael, I.J. Armyra (Greece), W.A. Wakeham (UK), S.S.V. Stankus (Russia), J. Brillo, A. Thess (Germany), J.T. Wu (P.R. China), E. Kaschnitz (Austria), M. Banish (USA).

9. Three new volumes on experimental thermodynamics series published under the auspices of IUPAC.  
W.A. Wakeham - Coordinator, V. Vesovic (UK), A. Goodwin, M. Huber, J. Sengers (USA), M.J. Assael (Greece)

10. Round Robin project on ionic liquids viscosity, and thermal conductivity measurements.  
J.M.N.A. Fareleira, C.A. Nieto de Castro (Portugal), A. Leipertz, A. Froeba, U. Hammerschmidt, B. Rathke (Germany), J. Fernandez (Spain), R. Perkins (USA), and K. Harris (Australia).

11. Mexico research perspectives in the rheology of heavy oils.  
S.E. Quiñones-Cisneros (Mexico)

16:30 Coffee

- Future Collaborative Projects: Proposals
- Membership
- Future Meetings

17:00 Meeting Adjourn

17:40 Meetings of Project Committees