



The Abdus Salam
International Centre
for Theoretical Physics
50th Anniversary 1964–2014



First ICTP-IVIC Latin-American Advanced Workshop on Numerical, Instrumentation and Measurement Methods in Fluid Dynamics

11 - 22 August 2014

IVIC, San Antonio de los Altos - Venezuela (the Bolivarian Republic of)

The Workshop will address fundamental aspects, recent advances, and applications of numerical and experimental methods in fluid dynamics.

Focus:

- advanced instrumentation;
- measurement concepts, and scientific fundamentals;
- new methods and applications of instrumentation in this field to train physicists, engineers and computer scientists from Latin-American and Caribbean countries.

Scope:

- to promote new experimental methods, instruments, measurement techniques, and data analysis routines for both laboratory and industrial applications;
- to learn about recent theoretical advances in the field including analytical, numerical, and experimental approaches;
- to stimulate collaboration among the Latin-American and Caribbean scientific communities to set-up projects and other initiatives to enhance the availability of public domain technical resources especially for research and education in developing countries;
- to coordinate international activities in this area.

Main Lecture topics:

1. Basics in microfluidic device fabrication, and how to make it simple (Oscar Martinez).
2. Numerical simulations of fluid-dynamic systems using SPH and other methods (Jaime Klapp);
3. Thermal convection at high Rayleigh and Taylor numbers (Joseph Niemela);
4. Experimental investigation of thermal diffusion in binary fluid mixtures using thermal lens spectroscopy (Mladen Franko);
5. Droplet Breakup and impact (José R. Castrejón-Pita);
6. Diffuse-interface modeling of liquid-vapor phase separation in droplets (Leonardo Sigalotti and Jaime Klapp);
7. Fatigue life and dynamic behavior of submarine pipelines subjected to slug flow and vortex-induced vibrations (Armando Blanco);
8. Experimental and computational issues of granular flows (Leonardo Trujillo);
9. Measurements of Statistical and Dynamical Forces in Silos. Infrared Thermography for Thermo-Fluid-Dynamics in Fractured and Homogeneous Porous Media (Abraham Medina and Abel López);
10. Flow in microchannels (Luis Rojas-Solórzano);
11. Multiphase flow issues for selection of heavy-oil transportation methods (Adriana Brito);
12. Generation of vortices, turbulence and thermodynamics of an atomic trapped superfluid (Vanderlei Bagnato);
13. On the use of thermal wave methods for characterization of nanofluids (Ernesto Marín Moares);
14. Vorticity in a periodic forced flow (Gerardo Ruíz Chavarría);
15. ABACUS-CINVESTAV a Strategic Supercomputer Center for Research in Mexico (Isidoro Gitler);
16. Solar granulation and their impact on chemical abundances (Claudio Mendoza);
17. Coloidal Hydrodynamics Resolved by Minimal Immersed Boundary Particles Models (Rafael Delgado-Buscalioni);
18. Statistical tools for data analysis (Alvaro Fernandez Morales);
19. Laser-induced breakdown spectroscopy (LIBS): a new paradigm for microanalysis (Luis Ponce)

PRE-ACTIVITY SECRETARIAT

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ICTP, Trieste, Italy

Speakers:

1. Jaime Klapp,

ININ and Cinvestav-Abacus, Mexico;

2. Joseph J. Niemela,
ICTP, Trieste, Italy;

3. Vanderlei Bagnato,
U. Sao Paulo, Brazil;

4. Ernesto Marín Moares,
CICiA- IPN, México;

5. Rafael Delgado-Buscalioni,
U. Madrid, España

6. Mladen Franko,
U. Nova Gorica, Slovenia;

7. José R. Castrejón-Pita,
U. Cambridge, UK;

8. Oscar Martinez,
UBA, Argentina;

9. Leonardo Trujillo,
IVIC, Venezuela;

10. Abraham Medina,
IPN, Mexico;

11. Abel López,
IPN, Mexico;

12. Luis Ponce,
IPN, Tampico, Mexico;

13. Adriana Brito,
Intevep-PDVSA, Venezuela;

14. Armando Blanco,
U. Simón Bolívar, Venezuela;

15. Gerardo Ruíz Chavarría,
F. Ciencias, UNAM, Mexico;

16. Isidoro Gitler,
Cinvestav-Abacus, Mexico.

17. Claudio Mendoza,
IVIC, Venezuela.

18. Alvaro Fernandez Morales,
IVIC, Venezuela.

Application Deadline: JUNE 20, 2014

APPLICATION: The "On-line Application" can be accessed via: the **ICTP activity website:**

<http://agenda.ictp.it/smr.php?2629>

inclusive of a **step-by-step instruction guide**

ICTP Home page: <http://www.ictp.it/>

IVIC Homepage: <http://www.ivic.gov.ve/>