



## Programme

### 12 november 2015

**8:30 Registration**

**9:00 Welcome** (Corrado Spinella, Paolo De Natale, Maurizio De Rosa)

**9:30 Invited Talk**

Ady Arie, Tel Aviv University (Israel)  
*Adiabatic frequency conversion*

**Session 1** (Francesco Minardi)

**10:20** Silvia Viciani, INO Firenze

*Experimental observation of noise assisted transport in an all-optical cavity-based network*

**10:40** Andreas Trenkwalder, INO Sesto Fiorentino:

*Bose-Einstein-Condensate with tunable interactions in a double well potential*

**11:00 Coffee Break**

**11:20** Daniele Cozzolino

*OSA Chapter Naples*

**11:40 Round Table: Advanced optical diagnostics**

Optical technologies are increasingly playing a vital role in developing new sensors and diagnostic tools for a growing number of applications. This round table will gather renowned experts to discuss the most recent achievements in the field of optical sensors, photonic materials, and optical diagnostic tools, in view of present and future applications.

Riccardo Chirone (CNR, Istituto di Ricerche sulla Combustione)

Antonello Cutolo (Università degli Studi del Sannio)

Antonio Varriale (CNR, Istituto di Scienze dell'Alimentazione)

Gianluca Gagliardi (CNR, Istituto Nazionale di Ottica)

Maurizio Peruzzini (CNR, Istituto di Chimica dei Composti Organometallici)

Gaetano Scamarcio (Università degli Studi di Bari)

Miriam Serena Vitiello (CNR, Istituto Nanoscienze)

**13:10 Lunch**

**13:50 Poster Session**

**Session 2** (Iolanda Ricciardi)

**14:40** Simone Borri, INO Sesto Fiorentino

*Microcavity-stabilized quantum cascade lasers for high-sensitivity and precision spectroscopy*

**15:00** Pietro Malara, INO Napoli

*Coupled-resonator based sensors: beyond the traditional cavity enhancement*

**15:20** Dario Zappa, INO Brescia

*Low power metal oxide nanowire gas sensors*

**15:40 Coffee Break**



**Session 3** (Franco Dalfovo)

- 16:00** Luigi Santamaria, INO Napoli  
*Low-temperature spectroscopy of the  $^{12}\text{C}_2\text{H}_2$  ( $\nu_1 + \nu_3$ ) band in a helium buffer gas*
- 16:20** Luigi Consolino, INO Sesto Fiorentino  
*Saturated absorption in a rotational molecular transition at 2.5 THz using a quantum cascade laser*
- 16:40** Francesco D'Amato, INO Firenze  
*Laser analyzers for the detection of dangerous molecular species in the atmosphere*
- 17:00** **Visit to INO Lab, Pozzuoli**
- 20:00** **Pizza Dinner**

## 13 november 2015

**9:00 Welcome speech by the Mayor of Naples, Luigi de Magistris**

**9:10 Invited Talk**

Philippe Bouyer, LP2N IOA, Bordeaux

*Large scale atom interferometers for gravitation experiments*

### **Session 4** (Camilla Baratto)

Camilla Parmeggiani, INO Sesto Fiorentino

*Liquid crystalline elastomers as artificial muscles towards nanorobotic devices*

**10:20** Ludovico Silvestri, INO Sesto Fiorentino

*Optical mapping of neuronal activation across the entire brain with single-cell resolution*

**10:40** Elisabetta Tognoni, INO Pisa

*Bias modulation for faster scanning ion conductance microscopy of biological samples*

**11:00** Fabrizio Sgrignuoli, INO Sesto Fiorentino

*Photonic necklace states in 2d and integrated single quantum emitters*

**11:20 Coffee Break**

### **Session 5** (Pablo Cancio)

**11.30** Riccardo Meucci, INO Firenze

*A new model for complex dynamics in a dc glow discharge tube*

**11:50** Elisa Sani, INO Firenze

*Characterization of ceramic high-temperature solar absorbers*

**12:10** David Jafrancesco, INO Firenze

*Optical design of a light-emitting diode lamp for a maritime lighthouse*

**12:30** Franco Dinelli, INO Pisa

*Ultrasonic force microscopy: mechanical contrast at the nanoscale for structural analysis of ultrathin films*

**12:50** Maria Parisi, INO Napoli

*Frequency comb generation in quadratic nonlinear media*

**13:10 Lunch**

**13:50 Poster Session**

### **Session 6** (Elisabetta Tognoni)

**14:40** Davide Mazzotti, INO Sesto Fiorentino

*Recent developments of the SCAR apparatus for radiocarbon dioxide optical detection*

**15:00** Guido Toci, INO Sesto Fiorentino

*Design and characterization of Yb-doped transparent ceramics for high power laser applications: recent advancements at CNR*

**15:20** Fernando Brandi, INO Pisa

*Gas targets for laser-plasma acceleration applications*

**15:40 Coffee Break**



**16:00 Round Table: *From sensor networks to final applications: platforms for data collection, processing, and transmission***

Optical sensors and fiber optic sensors may represent one of the physical layers of a more complex structure that comprises both a data layer and a network for data communication and services. In this round table, starting from the physical sensor layer, the possibility to create a flexible platform to develop different applications only based on a software management will be discussed.

Romeo Bernini (CNR, Istituto per il Rilevamento Elettromagnetico dell'Ambiente)

Guido Caldarelli (CNR, Istituto dei Sistemi Complessi)

Giacomo Corvisieri (Italtel S.p.A.)

Giuseppe De Natale (INGV, Osservatorio Vesuviano)

Mario Martinelli (Politecnico di Milano)

Maurizio Mirabile (Hpsystem s.r.l.)

Alessandra Rossetti (Vitrociset S.p.A.)

**17:30 Closing Remarks**