

FIRST LARES 2, FOURTH LARES AND SECOND GRM INTERNATIONAL WORKSHOP ROMA, 1-5 JULY 2019

Monday morning 1 July-Auditorium of the Italian Space Agency

8:25 Bus to Italian Space Agency from Hotel Galles

8:30 Bus to Italian Space Agency from Casa dell'Aviatore

10:00-10:30

Introductory remarks: I. Ciufolini, A. Paolozzi, W.T. Ni, B. Negri

10:30-12:15

Highlights on the workshop Chairman: Richard Matzner

Roger Penrose, Wei Tou Ni, Stefano Bianchi, Vahe Gurzadyan, Sergei Kopeikin, Claus Laemmerzahl, Slava Turishev, Ignazio Ciufolini;

12:15 Bus departs from Italian Space Agency to the catering site.

12:50-13:50 Lunch

13:50 Bus from catering site to Hotel Galles and Casa dell'Aviatore arrival about 14:30

Afternoon tours to Roman sites

14:55 Bus departs from Hotel Galles to location of tour

15:00 Bus departs from Casa dell'Aviatore to location of tour

15:30 start tours

18:30 Bus departs from end tour to Galles hotel and Casa dell'Aviatore

Tuesday morning 2 July-Casa dell'Aviatore

9:30-9:35 Welcome of Nazzareno Cardinali

Chairman: Richard Matzner

9:35-10:20 Roger Penrose, *On General Relativity and Cosmology (Observation of "Hawking points")*

Gravitomagnetism and its tests 1

10.20-10:55 Wei-Tou Ni, *Genesis of General Relativity and the beginning of gravitomagnetism.*

10:55-11:30 Claus Laemmerzahl, *The many facets of gravitomagnetism.*

Coffee break and *registration*

12:05-12:40 Ignazio Ciufolini, *LARES, LARES 2 and gravitomagnetism.*

Lunch

Afternoon tour to the ancient Roman site of Ostia Antica with a special degustation of ancient Roman bread (do not worry, it is fresh, it was indeed kept for you near a black hole since Julius Caesar times!)

14:30 Bus to Ostia Antica departs from Casa dell' Aviatore

14:40 Bus to Ostia Antica from Galles hotel

Wednesday 3 July-Casa dell' Aviatore

Tests of General Relativity, Chairman: Claus Laemmerzahl

9:30-10:05 Richard Matzner, *Testing Uniqueness of Free Fall using three (or more) laser-ranged satellites.*

10:05-10:40 Vahe Gurzadyan, *Satellites testing General Relativity: residuals, correlations, perturbations.*

10:40-11:15 Sergei Kopeikin, *Veiled facets of the Eddington experiment.*

Coffee break

Chairman: Sergei Kopeikin

11:50-12:25 Slava Turishev, *Advanced Laser Ranging for High-Precision Science Investigations.*

12:25-13:00 Mario Lattanzi, *GAIA and Tests of General Relativity.*

Lunch

General Relativity, GW, alternative theories and their tests Chairman: Wei-Tou Ni

15-15:35 Rolf Koenig, *New gravity field models for an extended test of measuring frame dragging with SLR*

15:35-16:10 Hideki Asada, *Constraining vector parts of gravity from GW observations.*

16:10-16:45 Alexander Zakharov, *Tests of gravity theories with Galactic Center observations.*

Coffee break

Chairman: Slava Turyshev

17:15-17:50 Hongbo Jin, *Test of the relativistic redshifts with micro-satellites.*

17:50-18:10 Polina Dyadina, *Post-Newtonian limit of hybrid $f(R)$ -gravity.*

Thursday 4 July-Casa dell'Aviatore

Gravitomagnetism, its tests: technology and methodology Chairman: Vahe Gurzadyan

09:30-10:05 Erricos Pavlis, *The contribution of the LARES satellites to the ITRF.*

10:05-10:40 Ulrich Schreiber, *Progress in high resolution Sagnac Interferometry.*

10:40-11:15 Philippe Bouyer, *Geodesy and relativity with large underground matter wave antenna.*

Coffee break

Chairman: Antonio Paolozzi

The AVIO-ASI-ESA VEGA launchers

11:50-12:25 Paolo Bellomi, *Vega family: a success story for worldwide access to space.*

Lunch

Gravitomagnetism, its tests: technology and methodology Chairman: Hideki Asada

15:00-15:35 Ulrich Schreiber, *Local Two-Way Time and Frequency Distribution for Optical Time Transfer*

15:35-16:10 Angela di Virgilio, *GINGER and the ring laser gyros.*

Coffee Break

Chairman: Ulrich Schreiber

16:40-17:15 Andreino Simonelli, *Sea storm induced microseism in the mediterranean area: source tracking with 4C observations.*

17:15-17:50 Antonio Paolozzi, Giampiero Sindoni e Claudio Paris, *LARES and LARES 2 design.*

17:50-18:25 Catalina Curceanu, *Testing quantum mechanics in an underground laboratory*

18:45 – 19:15 Transfers to the Hotel Forum with a small shuttle bus from Hotel Galles

19:30 Banquet at Hotel Forum with a view on the Roman Forum

21:45 – 22:45 Transfers from the Hotel Forum to Hotel Galles with a small shuttle bus.

Friday 5 July-Casa dell'Aviatore

Gravitomagnetism, its tests: technology and methodology, Chairman Erricos Pavlis

10:05-10:40 Akito Araya, *Construction of a laser-strainmeter network for accurate seismic and geodetic observations.*

10:40-11:15 Jie Zhang, *Large scale passive laser gyroscopes for Earth rotation sensing at HUST*

11:15-11:50 Aram Gurzadyan, *Instability in superspace and resolvent integration of orbits*

Coffee Break

12:25-13:00 Zongyang Li, *A digitally controlled long-term frequency stabilized laser system for passive laser gyroscopes.*

Lunch

15:00 **Graduate students awards and concluding remarks**