

ACCADEMIA NAZIONALE DEI LINCEI

CENTRO LINCEO INTERDISCIPLINARE
«BENIAMINO SEGRE»

***SEMINAL INTERACTIONS BETWEEN
MATHEMATICS AND PHYSICS***

22-25 SETTEMBRE 2010

OPENING WORKSHOP OF THE
CENTER FOR MATHEMATICS AND THEORETICAL PHYSICS

PROGRAMMA



**Sotto l'Alto Patronato
del Presidente della Repubblica**

ROMA

PALAZZINA DELL'AUDITORIO - VIA DELLA LUNGARA, 230

Fino alle ore 10 è possibile l'accesso per le automobili
da Lungotevere della Farnesina, 10

COMITATO SCIENTIFICO

C. DE CONCINI, S. DOPLICHER, G. GALLAVOTTI, F. GUERRA, G. JONA-LASINIO, R. LONGO, F. MARTINELLI, R. MARRA, V. MASTROPIETRO, G. PARISI, P. PIAZZA, E. PRESUTTI, C. PROCESI, J. ROBERTS

COMITATO ORGANIZZATORE

A. DE SOLE, A. GIULIANI, D. GUIDO, R. LONGO, G. MORSELLA

Tuesday September 21, 2010, 5:00 pm:

Villa Mondragone: Isadore Singer receives the Laurea Honoris Causa from the University of Rome Tor Vergata

PROGRAM

Wednesday September, 22

- 10.00 – 11.00 Opening ceremony
- 11.30 – 12.30 GABRIELE VENEZIANO: *Strings, quantum mechanics, and the emergence of curved spacetime*
- 12.30 Intermission
- 14.15 – 15.15 ANDREA MONTANARI: *Message passing algorithms, random convex problems, and the risk of the LASSO*
- 15.45 – 16.45 JOEL LEBOWITZ: *Some open problems in statistical mechanics*

PUBLIC LECTURE

Chairman: GIOVANNI JONA-LASINIO

- 19.30 – 20.30 LUDVIG FADDEEV: *Mathematician's view on the development of physics*

Thursday September, 23

10.00 – 11.00 CEDRIC VILLANI: *Entropy in kinetic theory, from Boltzmann to Landau to Cercignani*

11.30 – 12.30 ALAIN CONNES: *Space-time from the spectral point of view*

12.30 Intermission

14.15 – 15.15 STANISLAV SMIRNOV: *CFT and SLE*

15.45 – 16.45 LAI-SANG YOUNG: *Mathematics of shear-induced chaos*

20.00 **Palazzo Rospigliosi: Conference Dinner, in honor of Sergio Doplicher on the occasion of his 70th birthday.**

Friday September, 24

10.00 – 11.00 VICTOR KAC: *Algebraic structures arising in field theory and classification of scalar Hamiltonian operators*

11.30 – 12.30 ANDREI OKOUNKOV: *Quantum groups and quantum cohomology*

12.30 Intermission

14.15 – 15.15 STEFAN HOLLANDS: *Correlators and Feynman integrals in de Sitter space-time*

15.45 – 16.45 FENG XU: *Subfactors and conformal field theory*

17.00 – 18.00 YASUYUKI KAWAHIGASHI: *Superconformal field theory and operator algebras*

PUBLIC LECTURE

Chairman: SERGIO DOPLICHER

19.30 – 20.30 ISADORE SINGER: *A Tour of Geometry: 500 B.C. - 2000 A.D.*

Saturday September, 25

10.00 – 11.00 ALESSIO FIGALLI: *Variational models for incompressible Euler equations*

11.30 – 12.30 KLAUS FREDENHAGEN: *Perturbative algebraic quantum field theory*

The Public Lectures are organized with the contribution of:

- Sistema Musei Scientifici della Sovrintendenza Comunale di Roma

The Conference is organized with the contribution of:

- Accademia Nazionale dei Lincei – Centro Linceo Interdisciplinare “B. Segre”
- European Research Council
- Istituto Nazionale di Alta Matematica – GNAMPA e GNFM
- Istituto Nazionale di Fisica Nucleare
- Ministero dell’Istruzione dell’Università e della Ricerca
- Università di Roma Sapienza
- Università di Roma Tor Vergata
- Università di Roma Tre