



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

Sotto l'Alto Patronato del Presidente della Repubblica

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

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 the 70th birthday of Sergio Doplicher**

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*

ROMA - PALAZZINA DELL'AUDITORIO - VIA DELLA LUNGARA, 230

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

SPONSORS: Accademia Nazionale dei Lincei, European Research Council, INdAM, INFN, MIUR, Musei Scientifici di Roma, Università di Roma Sapienza, Università di Roma Tor Vergata, Università di Roma Tre.