



SAPIENZA
UNIVERSITÀ DI ROMA

Dipartimento di Fisica, Sapienza Università di Roma (Aula Conversi)

Mathematical Physics: Theory and Applications

Conference in honour of Brunello Tirozzi seventieth birthday

Rome, September 18-20 2014



Agenda

Timetable of Thursday 18

09:00 – 09:40 Registration

09:40 – 10:00 Opening (Egidio Longo, Emanuele Caglioti, Enzo Nesi)

Chairman: Adriano Barra

10:00 – 10:30 **Francesco Guerra** - Consequences of self-averaging in neural networks:
The relevance of the Pastur-Scherbina-Tirozzi approach

10:30 – 10:50 **Giovanni Montani** - Accretion Processes in Astrophysics: Cross-fertilization with
Laboratory Plasmas?

11:00 – 11:30 Coffee Break

11:30 – 12:00 **Angelo Tuccillo** - Magnetic Confined Fusion: Status and Perspectives

12:00 – 12:20 **Sandro Magri** – Early adoption of Unix, TCP/IP and the Internet in aid to research in
mathematical physics

12:20 – 12:50 **Vladimir Nazaykinskiy** - Asymptotic solution of the wave equation with rapidly
oscillating coefficients

13.00 – 14:40 Lunch

Chairman: Francesco Guerra

14:40 – 15:10 **Claudio Procesi** - Quasi-periodic orbits and non-linear differential equations

15:10 – 15:30 **Gabriele Stabile** - Individual investment decisions for retirement savings:
A stochastic control approach

15:30 – 16:00 **Enzo Olivieri** - Lattice spin-systems outside criticality via scale adapted
cluster expansion

16:00 – 16:20 Coffee Break

16:20 – 16:50 **Krzysztof Gawedzki** - Topological invariants for periodically driven insulators

16:50 – 17:10 **TBA**

Timetable of Friday 19

Chairman: Elena Agliari

- 09:30 – 10:00 **Mario Pulvirenti** – Rigorous derivation of the Fick's law in a low-density regime.
- 10:00 – 10:30 **Mariya Shcherbina** – Central limit theorem in the problems of the spin glass theory and the random matrix theory
- 10:30 – 11:00 **Luigi Preziosi** - Modelling the formation of capillary networks

11:00 – 11:30 *Coffee Break*

- 11:30 – 12:00 **Corrado De Concini** – The range of the index of an operator transversally elliptic with respect to a torus
- 12:00 – 12:30 **Sergey Dobrokhotov** - Localized asymptotic solutions in 2-D linear run-up problem with curvilinear boundary
- 12:30 – 12:50 **Stefano Pittalis** - Ab-initio description of charge separation for solar energy conversion on the nano scale

13:00 – 14:40 *Lunch*

Chairman: Mariya Shcherbina

- 14:40 – 15:10 **Errico Presutti** - Hydrodynamic limit for interacting neurons
- 15:10 – 15:40 **Antonio Speranza** - Self-Nonlinearity and statistical intermittence of atmospheric planetary fluctuations
- 15:40 – 16:00 **Lavinia Roncoroni** - Lumpability of Abstract Cauchy Problems

16:00 – 16:30 *Coffee Break*

- 16:30 – 17:00 **Antti Kupianen** - Renormalizing Stochastic PDE's
- 17:00 – 17:20 **Stefano Mariani** – Evaluating the performance of numerical weather prediction systems: Statistics and methods for forecast verification

Timetable of Saturday 20

Chairman: Brunello Tirozzi

09:40 – 10:10 **Janfeng Feng** – Bridging gaps between Multiscale Datasets in Mental Disorders

10:10 – 10:30 **Marco Piersanti** - Wind into Power - Forecasting wind power production using ANNs

10:30 – 10.50 Coffee Break

10:50 – 11:20 **Alessandro Cardinali** - Asymptotic techniques in the solution of the Maxwell's equations in plasmas

11:20 – 11:40 **Giulia Rotundo** - Risk and return of mutual funds and stocks. A network analysis on funds holdings

11:40 – 12:10 **Sergio Albeverio** - TBA

12:10 – 12:30 *Concluding remarks* (**Brunello Tirozzi's speech**)

20.30 – 00:00 Social Dinner

The following sponsors are truly acknowledged: Thank you!



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