

Errico Presutti

A contagious smile thought Statistical Mechanics

L. Bertini

Dipartimento di Matematica
Università di Roma La Sapienza

INHOMOGENEOUS RANDOM SYSTEMS

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Errico at home



A Russian connection



Errico and friends (Santa Barbara, 1987)



Errico's scientific achievements, highlights (second part)

► Ising-Kac models, Equilibrium and Dynamics.

- Long but finite range corrections to the mean field critical temperature.
- Dynamical scaling limit: motion by curvature.
- Detailed analysis of fluctuations.

Scaling limits in statistical mechanics and microstructures in continuum mechanics. Springer, 2008

► Tools from GMT (Geometric Measure Theory) in Statistical Mechanics.

- G. Alberti, G. Bellettini, M. Cassandro, E. Presutti; Surface tension in Ising system with Kac potentials. *J. Stat. Phys.* **82**, 743—796 (1996)
- O. Benois, T. Bodineau, P. Buttà, E. Presutti; On the validity of van der Waals theory of surface tension. *Markov Processes Related Fields* **3**, 175—198 (1997)

Errico's scientific achievements, highlights (second part)

- ▶ Stochastic PDE and particle systems.
 - G. Giacomin, J.L. Lebowitz, E. Presutti; Deterministic and stochastic hydrodynamic equations arising from simple microscopic model systems. In Stochastic partial differential equations: six perspectives, Math. Surveys Monogr. **64**, 107—152 1999. [Cited in M. Hairer, A theory of regularity structures.]
- ▶ Phase transitions for continuous models.
 - J.L. Lebowitz, A. Mazel, E. Presutti; Liquid-vapor phase transitions for systems with finite-range interactions. J. Stat. Phys. Vol. **94**, 955–1025 (1999)
- ▶ Microscopic models of thermostats
 - G. Gallavotti, E. Presutti; Nonequilibrium, thermostats and thermodynamic limit. J. Math. Phys. **51**, 015202 (2010)

Errico's relationship with students

*Errico takes a piece of stone [“coccio” in Roman slang]
spends a year with it
and it becomes a fine scientist*

*You tell him about your current problem
He answers something you cannot make sense about
You think it over for a few days
You find out he actually told you how to solve it*

My experience with Errico

- ▶ I began the PhD in Tor Vergata and he started teaching me.
- ▶ We agreed my thesis should be about Burgers/KPZ equation and particle systems.
- ▶ I spent a year at NYU, but he sent me an e-mail with detailed instructions.
 - L. Bertini, G. Giacomin; Stochastic Burgers and KPZ equations from particle systems. *Commun. Math. Phys.* **183**, 571–607 (1997)
[My most original contribution to Mathematics]

Younger colleagues strongly influenced by Errico (partial list)

G. Alberti	N. Ansini	F. Baffioni	G. Bellettini
O. Benois	L. Bertini	R. Bissacot	T. Bodineau
L. Bonaventura	S. Brassesco	P. Buttà	P. Calderoni
S. Caprino	G. Carinci	L. Chariker	M. Colangeli
L. Cioletti	A. De Masi	N. Dirr	R. Esposito
P.A. Ferrari	L.R. Fontes	D. Gabrielli	A. Galves
G. Giacomin	C. Giardinà	T. Gobron	N. Ianiro
T. Kuna	E. Löcherbach	C. Maes	G. Manzi
D.H.U. Marchetti	R. Marra	I. Merola	S. Olla
E. Orlandi	C. Pouzat	E. Pulvirenti	K. Ravishankar
B. Rüdiger	E. Saada	V. Sidoravicius	N. Soprano-Loto
L. Triolo	D. Tsagkarogiannis	M.E. Vares	Y. Vignaud
W.D. Wick			