



**Forty years of Stochastic Resonance**  
12 - 15 September 2021, Perugia (Italy)

**Sunday 12, September**

18:30 – 20:00 | **Welcome cocktail and Registration**

**Monday 13, September**

8:00 – 9:30	<b>Registration</b>
9:30 – 10:00	Opening address
10:00 – 10:35	A short historical perspective on Stochastic Resonance ( <i>R. Benzi</i> )
10:35 – 11:00	A Nonlinear Response with Memory Makes Stochastic Resonance Extremely Broadband and Drastically Enhances Energy Harvesting ( <i>S. Rodriguez</i> )
11:00 – 11:25	<b>Coffee break</b>
11:25 – 12:00	Relevance of Noise to Adaption and Evolution ( <i>K. Kaneko</i> )
12:00 – 12:25	Deterministic noise ( <i>J. Rowland Adams</i> )
12:25 – 13:00	How irreversible are steady-state trajectories of an active particle? ( <i>R. Eichhorn</i> )
13:00 – 14:30	<b>Lunch</b>
14:30 – 15:05	Poster pitch presentations
15:05 – 15:30	Stochastic Resonance in a Metal-Oxide Memristive Device ( <i>B. Spagnolo</i> )
15:30 – 16:05	Frequency-control of protein translocation across an oscillating nanopore ( <i>F. Cecconi</i> )
16:05 – 16:30	<b>Coffee break</b>
16:30 – 17:05	Entropic stochastic resonance in deformable micro-channels ( <i>M. Rubi</i> )
17:05 – 17:30	Collective drifts in vibrated granular packings: the interplay of friction and structure ( <i>A. Plati</i> )
17:30 – 18:05	Antiresonant driven systems for particle manipulation ( <i>P. Malgaretti</i> )

**Free time for socializing**

## Tuesday 14, September

9:00 – 9:35	Understanding causation via linear response theory ( <i>A. Vulpiani</i> )
9:35 – 10:10	Quantifying, measuring and learning time's arrow ( <i>C. Jarzynski</i> )
10:10 – 10:35	Information and thermodynamics: benefits and specificities of underdamped systems for experimental demonstrations ( <i>S. Dago</i> )
10:35 – 11:00	Constructive Role of Finite-Size-Fluctuations ( <i>A. Pikovsky</i> )
11:00 – 11:15	<b>Coffee break</b>
11:15 – 11:50	Fluctuational Permeation of Ion Channels ( <i>P. McClintock</i> )
11:50 – 12:25	Resonances and critical phenomena in the brain ( <i>D. Chialvo</i> )
12:25 – 13:00	A Room Temperature Neuromorphic Magnetometer for Measuring Brain Iron Content as a Marker of Neurodegenerative Disease ( <i>A. Bulsara</i> )
13:00 – 14:30	<b>Lunch</b>
14:30 – 15:05	Role of fluctuations in epidemic resurgence after a lockdown ( <i>I. Neri</i> )
15:05 – 15:40	SARS-CoV-2 genetics as seen from GISAID ( <i>E. Aurell</i> )
15:40 – 16:05	Asymptotic Estimates of Sars-CoV-2 Infection Counts and Their Sensitivity to Stochastic Perturbation in SEIR Models ( <i>D. Faranda</i> )
16:05 – 16:30	On the role of excitable systems in climate dynamics ( <i>S. Pierini</i> )
16:30 – 16:55	A Data-Derived Signal-to-Noise Resonance Model for Geomagnetic Polarity Reversals ( <i>G. Consolini</i> )
17:30	<b>Excursion</b>
20:00	<b>Gala dinner</b>

## Wednesday 15, September

9:00 – 9:35	Optimizing Brownian escape by shaping barriers ( <i>E. Trizac</i> )
9:35 – 10:10	Strong Resonant Reduction of Activation Barrier by Weak Periodic Driving ( <i>I. Khovanov</i> )
10:10 – 10:35	Instantaneous scale-dependent properties of stochastic strange attractors ( <i>T. Alberti</i> )
10:35 – 11:00	Exploring the rich attractor space of repulsively coupled oscillators by noise or disorder in the natural frequencies ( <i>H. Meyer-Ortmanns</i> )
11:00 – 11:25	<b>Coffee break</b>
11:25 – 12:00	Real and virtual noise in quantum systems: from thermal relaxation to quantum phase transitions ( <i>C. Presilla</i> )
12:00 – 12:35	A reduction methodology for fluctuation driven population dynamics ( <i>M. Di Volo</i> )

12:35 – 13:00	Hubs, diversity, and noise in FitzHugh-Nagumo oscillator networks: Synchronization and Resonances ( <i>S. Scialla</i> )
13:00 – 14:30	<b>Lunch</b>
14:30 – 15:05	Several Applications of Fluctuations and Noise ( <i>S. Ciliberto</i> )
15:05 – 15:40	Global sensitivity analysis of bistable energy harvesting systems via Sobol indices ( <i>A. Cunha Jr.</i> )
15:30 – 15:55	Applications of nonlinear energy harvesting ( <i>F. Cottone</i> )
15:55 – 16:20	<b>Coffee break</b>
16:20 – 16:45	A simple parameter can switch between different weak-noise-induced resonance phenomena in a neuron model ( <i>M. Yamakou</i> )
16:45 – 17:20	Recent developments on the dynamics of driven nonlinear systems: Stochastic and Vibrational Resonance ( <i>V. Uchechukwu</i> )
17:30	Transfer to the event site.
18:30	<b>Public event with Giorgio Parisi</b>
20:00	<b>Farewell party</b>