SSM

Scientific Colloquia

Scuola Superiore Meridionale

Academic Year 2021-2022

Cycle: Second cycle of highly interdisciplinary Scientific Colloquia

Seminar program

1

Exploring the early Universe through the cosmic microwave background

Date and time: 4 November 2021 - 3 pm CET
Speaker(s): Paolo Natoli
Affiliation / role: Professor at Department of Physics and Earth Science, Ferrara University - Italy

2

Evolution by curvature of networks in the plane

Date and time: 11 November 2021 - 2 pm CET
Speaker(s): Carlo Mantegazza
Affiliation / role: Professor at University of Naples Federico II and Scuola Superiore Meridionale - Italy

3

Turbulent dynamics in viscous fluids: a complex phenomenon ubiquitous in nature

Date and time: 18 November 2021 - 2 pm CET
Speaker(s): Vincenzo Carbone
Affiliation / role: Professor at Department of Physics, Calabria University - Italy

4

Graphons: a tool for the analysis of systems on large networks

Date and time: 25 November 2021 - 2 pm CET
Speaker(s): Paolo Frasca
Affiliation / role: Researcher at Centre national de la recherche scientifique - France

5

Hyperuniform States of Matter and Their Novel Transport Properties

Date and time: 2 December 2021 - 2 pm CET
Speaker(s): Salvatore Torquato
Affiliation / role: Professor at Department of Physics, Princeton University - USA

6

Structure, processes and dynamics of networks with higher order interactions

Date and time: 9 December 2021 - 2 pm CET
Speaker(s): Stefano Boccaletti
Affiliation / role: Director of research at CNR - Institute of Complex Systems, Sesto Fiorentino - Italy

7

Social network dynamics leading to community formation and residential segregation

Date and time: 16 December 2021 - 2 pm CET
Speaker(s): Massimo Franceschetti
Affiliation / role: Professor at Department of Electrical and Computer Engineering, California University - USA

8

Climate meets complexity: Exploring predictability of extreme climate events via a complex network approach

Date and time: 13 January 2022 - 2 pm CET
Speaker(s): Jürgen Kurths
Affiliation / role: Professor at Potsdam Institute for Climate Impact Research and Institute of Physics, Humboldt University, Berlin - Germany

9

The challenge of gravitational wave detectors of the 3rd generation. Cultural and technological aspects

Date and time: 20 January 2022 - 2 pm CET
Speaker(s): Ettore Majorana
Affiliation / role: Professor at Physics Department, Sapienza University of Rome - Italy

10

Space Weather: Science or Application?

Date and time: 27 January 2022 - 2 pm CET
Speaker(s): Lucilla Alfonsi
Affiliation / role: Researcher at Upper Atmosphere Physics and Radiopropagation Unit, National Institute of Geophysics and Volcanology, Rome - Italy

11

The quest of quantum advantage with a photonics platform

Date and time: 3 February 2022 - 2 pm CET
Speaker(s): Fabio Sciarrino
Affiliation / role: Full Professor at the Physics Department of the University of Rome La Sapienza and Senior Research Fellow at the International School for Advanced Studies Sapienza, SSAS, Rome - Italy

12

Enlightening the Universe with high-energy cosmic neutrinos

Date and time: 10 February 2022 - 2 pm CET
Speaker(s): Marco Chianese
Affiliation / role: Researcher at University of Naples Federico II - Italy

13

The needle in the haystack: the search for rare processes and the fundamental laws of Nature

Date and time: 17 February 2022 - 2 pm CET
Speaker(s): Fabio Ambrosino
Affiliation / role: Professor at University of Naples Federico II - Italy

14

From Neural PDEs to Neural Operators: Blending data and physics for fast predictions

Date and time: 24 February 2022 - 2 pm CET
Speaker(s): George Em Karniadakis
Affiliation / role: The Charles Pitts Robinson and John Palmer Barstow Professor of Applied Mathematics and Engineering, Brown University - USA; Massachusetts Institute of Technology - USA; Northwest National Laboratory - USA

15

An overview of the transient sky at high-energies

Date and time: 03 March 2022 - 2 pm CET
Speaker(s): Andrea Sanna
Affiliation / role: Assistant Professor of Astronomy and Astrophysics at the University of Cagliari - Italy

16

Global and cluster synchronization in complex networks and beyond

Date and time: 10 March 2022 - 2 pm CET
Speaker(s): Mattia Frasca
Affiliation / role: Professor at Department of Computer Science and Electronic Engineering, University of Catania - Italy

17

High Energy X-ray Astrophysics from Space: revealing the backbones of the Universe

Date and time: 17 March 2022 - 2 pm CET
Speaker(s): Maurizio Paolillo
Affiliation / role: Full professor of Astrophysics at the Federico II University, Naples - Italy

18

The search for Earth-like exoplanets in the Galaxy

Date and time: 24 March 2022 - 2 pm CET
Speaker(s): Giovanni Covone
Affiliation / role: Professor of Astronomy and Astrophysics at the Department of Physics, Federico II University, Naples - Italy

19

From basic principles in Spintronics to some recent developments toward spin-orbitronics

Date and time: 31 March 2022 - 2 pm CEST
Speaker(s): Vincent Cros
Affiliation / role: Unité Mixte de Physique, CNRS, Thales, Université Paris-Saclay, 91767, Palaiseau - France

20

Capillary surfaces and a model of nanowire growth

Date and time: 07 April 2022 - 2 pm CEST
Speaker(s): Massimiliano Morini
Affiliation / role: Professor at the Department of Mathematical, Physical and Computer Sciences, University of Parma - Italy

21

Likelihood-weighted active learning with application to Bayesian optimization, uncertainty quantification, and decision making in high dimensions

Date and time: 21 April 2022 - 2 pm CEST
Speaker(s): Themistoklis Sapsis
Affiliation / role: Professor at Department of Mechanical Engineering, Institute for Data, Systems and Society and Center for Computational Science and Engineering, Massachusetts Institute of Technology - USA

22

Observing the VHE gamma ray sky with Cherenkov Telescopes in the XXI century

Date and time: 28 April 2022 - 2 pm CEST
Speaker(s): Lucio Angelo Antonelli
Affiliation / role: Director of INAF - Rome Astronomical Observatory - Italy

23

Power-Law Gels, Scott-Blair and the Fractional Calculus of Soft Multi-scale Materials

Date and time: 05 May 2022 - 2 pm CEST
Speaker(s): Gareth H. McKinley
Affiliation / role: Professor at Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139 - USA

24

An informal discussion around stochastic control and free boundary problems

Date and time: 12 May 2022 - 2 pm CET
Speaker(s): Tiziano De Angelis
Affiliation / role: Professor at School of Management and Economics, Department of Economic and Social Sciences and Mathematical Statistics, University of Torino - Italy; Affiliate at Collegio Carlo Alberto, Torino - Italy

25

Are 2 derivatives enough to describe Nature at a fundamental level?

Date and time: 19 May 2022 - 2 pm CET
Speaker(s): Luca Buoninfante
Affiliation / role: Research Fellow at NORDITA - Nordic Institute for Theoretical Physics - Stockholm, Sweden

26

Simple complexity in the evolution of seismic input and design

Date and time: 26 May 2022 - 2 pm CET
Speaker(s): Gian Michele Calvi
Affiliation / role: Professor and Vice-Rector for Research at IUSS, Scuola Universitaria Superiore, Pavia - Italy; Director of Science at European Centre for Training and Research in Earthquake Engineering, EUCENTRE Foundation, Pavia - Italy; Executive Vice-President at International Association for Earthquake Engineering IAEE, Tokyo - Japan; Adjunct Professor at North Carolina State University, Raleigh, NC - USA

27

Quantum fluids of atoms and of light as analog models of gravity: a fruitful synergy of gravitational physics and quantum optics

Date and time: 09 June 2022 - 2 pm CET
Speaker(s): Iacopo Carusotto
Affiliation / role: Research Director at the BEC Center of INO-CNR in Trento, Italy

28

Risk-modeling Complex Engineering Systems

Date and time: 16 June 2022 - 2 pm CET
Speaker(s): Enrico Zio
Affiliation / role: Professor at Energy Department, Polytechnic of Milan - Italy

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From resilience assessment to design for resilience: what is missing?

Date and time: 14 July 2022 - 2 pm CET
Speaker(s): Paolo Franchin
Affiliation / role: Professor at Department of Structural and Geotechnical Engineering, “Sapienza” University of Rome - Italy