THEORY LECTURE SERIES: Networks. A change of paradigm

MARI ANGELES SERRANO MORAL

March 14, 2023 to March 23, 2023
10:00 to 12:00
Blue Lecture Room and Online (Zoom)

The lectures will be held on
March 16 ONLINE via zoom here
March 21 & **23, 10:00** to **12:00, BLR**
March 28, 15:00 to 17:00, BLR
All lectures will be broadcasted **ONLINE via zoom** here

Abstract
Complex networks of interactions permeate reality and have important implications. Examples are all around us---the Internet, food webs, international trade, online and offline social networks... ---, and inside us -biochemical interactions in our cells, the brain connectome... Surprisingly, all these networks, regardless of their origin, talk a common language and are imprinted with universal features and behaviors. They are small-worlds, strongly hierarchical, modular, robust yet fragile, adaptable, evolvable, and may exhibit unexpected responses like cascades, crises, and other critical and extreme events. Networks are critical to understand human nature -from genome to society- and our environment, and are changing the way in which we model and predict complex systems in many different disciplines. The benefits of elucidating their mysteries not only refer to illuminating basic principles of nature. The network approach is crucial to propose judicious actions concerning some of the greatest open problems we are facing nowadays, like the development of new scalable Internet protocols, efficient treatments against complex diseases, the prediction and control of economic crises, and climate change.

Lecturer

Angeles Serrano is an ICREA Research Professor at the Dept. of Condensed Matter Physics of the University of Barcelona, where she directs the Mapping Complexity Lab. She also holds an appointment as an External Faculty at the Complexity Science Hub Vienna CSH. A native of Barcelona, M. Angeles received a Ph.D. in theoretical physics from UB, and a year later a master in mathematics for finance from the Centre de Recerca Matematica CRM. She spent several years in the private sector and returned to academia to work in complexity science.

She conducted postdoctoral research at Indiana University (USA), the Ecole Polytechnique Federale de Lausanne (Switzerland) and IFISC Institute (Spain), and was awarded a Ramon y Cajal Fellowship.

M. Angeles obtained the Outstanding Referee Award of the American Physical Society (APS) and the James McDonnell Foundation Scholar Award for the Study of Complex Systems. She is a member of the Board of the Statistical and Nonlinear Physics Division of the European Physical Society and belongs to the Editorial Board of the APS journal Physical Review Research. She is a founding member of Complexitat, the Catalan network for the study of complex systems, and a promoter and scientific board member of UBICS, the Universitat de Barcelona Institute of Complex Systems.

Participation is open to all ICFOnians

We strongly encourage you to attend the lectures in person.

In case you are unable to attend in person, please, use the following link, which will also be available on November 22&23:

Join Zoom Meeting

https://us06web.zoom.us/j/89438194011?pwd=Z3dxNXJmcSsrT2pRNU53bVdFY3NqUT09

Meeting ID: 894 3819 4011

Passcode: 334243

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