

BUILDING BRIDGES ON QUANTITATIVE BIOLOGY



JOINT SEMINAR SERIES
INSTITUTE FOR MOLECULAR AND CELL BIOLOGY |
CENTER OF MATHEMATICS UNIVERSITY PORTO

NEXT SEMINAR

09 APRIL 2015 | 17H00

IBMC MAIN AUDITORIUM

STOCHASTIC SIMULATION IN BIOLOGY

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CENTER OF MATHEMATICS, UNIVERSITY PORTO

IN MANY PRACTICAL SITUATIONS, PHYSICAL AND BIOLOGICAL PHENOMENA CAN BE MODELLED BY CHAOTIC DYNAMICAL SYSTEMS, WHOSE ERRATIC BEHAVIOUR MAKES THEM HARD TO UNDERSTAND AND PREDICT.

MOTIVATED BY THE LONG RANGE OF APPLICATIONS OF SUCH SYSTEMS, WE WILL START BY INTRODUCING THE MAIN CONCEPTS, INCLUDING NOTIONS SUCH AS: PHASE SPACE, TIME, EVOLUTION LAWS, PERIODIC POINTS, INVARIANT MEASURES, STATIONARITY, ERGODICITY, MIXING...

GIVEN THE OMNIPRESENT UNCERTAINTY ASSOCIATED TO SUCH SYSTEMS WE DISCUSS NATURAL PROBABILISTIC QUESTIONS AND POSSIBLE ANSWERS. WE WILL ADDRESS ISSUES SUCH AS LAWS OF LARGE NUMBERS, CENTRAL LIMIT THEOREMS, LARGE DEVIATIONS, EXTREME VALUES LAWS.

THE FOCUS WILL BE ON THE SIGNIFICANCE AND HEURISTIC INTERPRETATION OF THE CONCEPTS AND POSSIBLE OUTPUTS OF ERGODIC THEORY.

MORE INFO:

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