Fisica dei Sistemi Complessi
Università di Firenze

INTERACTIONS

COMPLEX SYSTEMS CONSIST OF MANY COMPONENTS INTERACTING WITH EACH OTHER AND THEIR ENVIRONMENT IN MULTIPLE WAYS.

"Every object that biology studies is a system of systems."

(Francois Jacob)

EMERGENCE

PROPERTIES OF COMPLEX SYSTEMS AS A WHOLE ARE VERY DIFFERENT, AND OFTEN UNEXPECTED, FROM PROPERTIES OF THEIR INDIVIDUAL COMPONENTS.

"You don't need something more to get something more. That's what emergence means."

(Murray Gell-Mann)

SELF-ORGANIZATION

COMPLEX SYSTEMS MAY SELF-ORGANIZE TO PRODUCE NON-TRIVIAL PATTERNS SPONTANEOUSLY WITHOUT A BLUEPRINT.

"It is suggested that a system of chemical substances, called morphogens, reacting together and diffusing through a tissue, is adequate to account for the main phenomena of morphogenesis."

(Alan Turing)

ADAPTATION

COMPLEX SYSTEMS MAY ADAPT AND EVOLVE.

"Nothing in biology makes sense except in the light of evolution."

(Theodosius Dobzhansky)

INTERDISCIPLINARITY

COMPLEXITY SCIENCE CAN BE USED TO UNDERSTAND AND MANAGE A WIDE VARIETY OF SYSTEMS IN MANY DOMAINS.

"It may not be entirely vain, however, to search for common properties among diverse kinds of complex systems... The ideas of feedback and information provide a frame of reference for viewing a wide range of situations."

(Herbert Simon)

Presentazione percorso in Fisica dei Sistemi Complessi, laurea magistrale in Fisica e Astrofisica
5/7/2022 ore **14:30**
Aula 281, Dipartimento di Fisica
https://meet.google.com/igj-buis-rrn

Il percorso è compatibile con i curricula di Fisica Teoria e Fisica della Materia (eventualmente con piano di studi cartaceo), ed è centrato sui corsi:

- Meccanica statistica (FIS/02)
- Fisica dei sistemi complessi con applicazioni (FIS/03)
- Sistemi dinamici e teoria del caos (FIS/02)
- Processi stocastici e di non equilibrio (FIS/02)
- Laboratorio di fisica computazionale (FIS/03)

+ (triennale) Introduzione alla fisica dei sistemi complessi

"I think the next [21st] century will be the century of complexity."

(Stephen Hawking)