

BENVINGUTS A L' IFISC

INSTITUT DE FÍSICA INTERDISCIPLINÀRIA
I SISTEMES COMPLEXOS

Centre de recerca científica conjunt entre



Universitat de les
Illes Balears

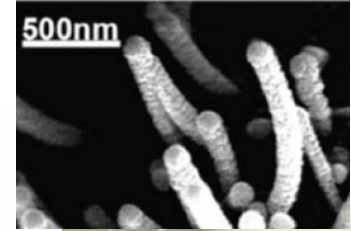


CSIC

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS



IFISC



Centros Propios / CSIC centres:	75
Centros Mixtos / Joint Centres:	50
125 centres	





IFISC

Espanya
Portugal
Polònia
Veneçuela
Turquia
Argentina
Brasil
Rumania
Camerun
Itàlia
Alemanya
Bielorússia
Rússia
Estònia
Bèlgica

50 investigadors procedents de 15 països distints



20 investigadors en
formació
(estudiants de màster i
de doctorat).

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SISTEMES COMPLEXOS

$1+1=2 \dots 2+1=3 \dots$ però si juntem molts elements, el total no es pot entendre com a simple suma de les parts



CLICK FOR MOVIE

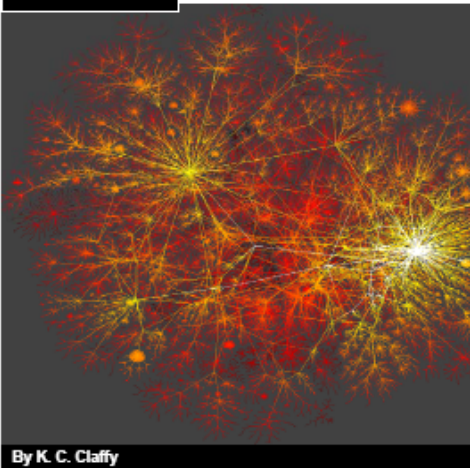


SISTEMES COMPLEXOS: els compostats per moltes parts que interactuen, donant lloc a fenòmens nous que no apareixen a les parts aïllades

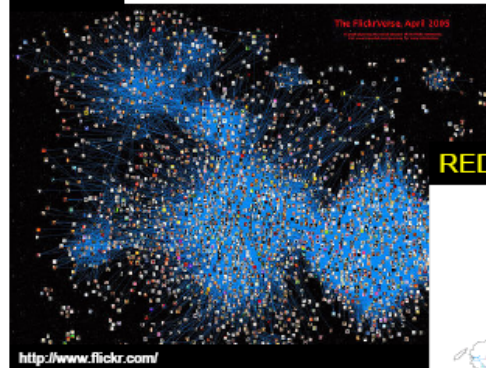
NEURONA → CERVELL → CONCIÈNCIA



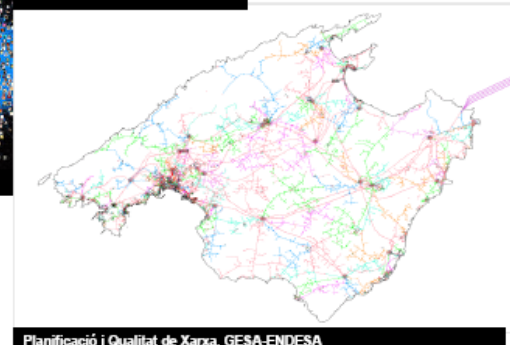
INTERNET



FLICKR



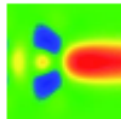
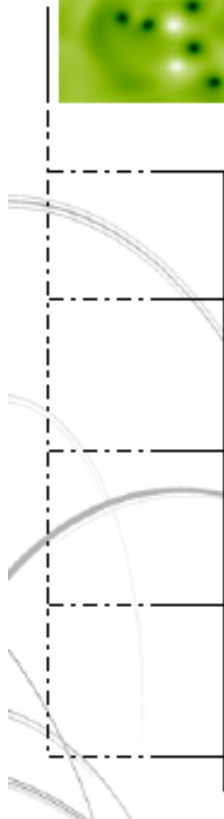
RED ELECTRICA



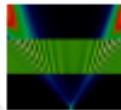
FÍSICA INTERDISCIPLINÀRIA: l'IFISC investiga a la frontera entre la física i altres ciències



Sistemes complexos



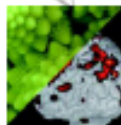
Informació quàntica: el món de l'ultrapetit



Òptica, fotònica, làsers, transmissió d'informació per fibra òptica...



Moviment de fluids, turbulència, oceanografia

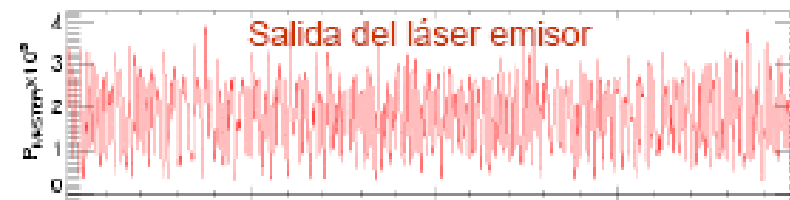
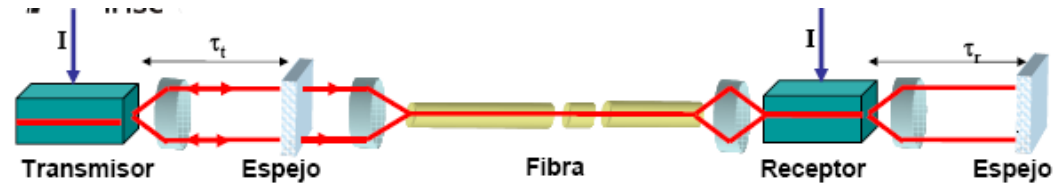
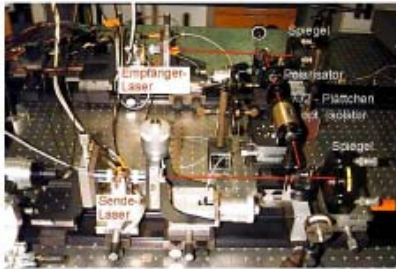


Sistemes biològics: neurones, creixement de plantes, desenvolupament d'embrions

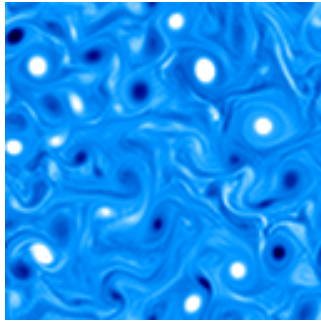


Sistemes socials: xarxes socials, formació d'opinió ...

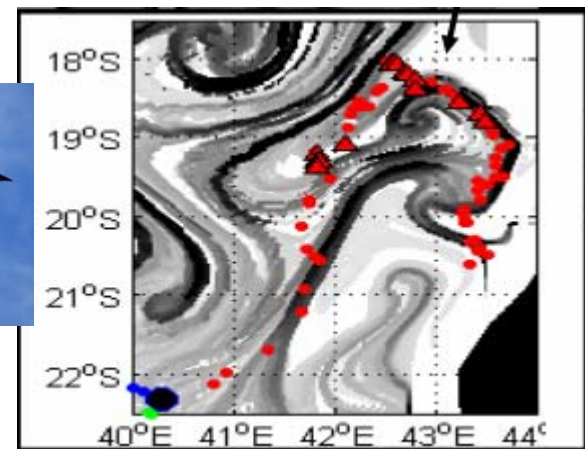
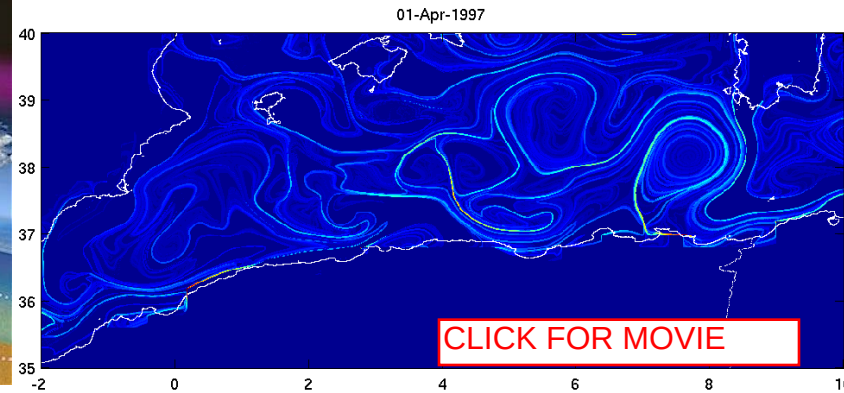
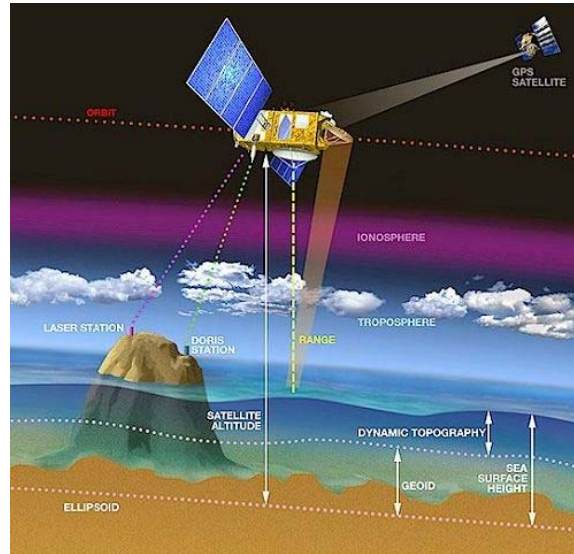
Fent servir el **caos** per comunicacions òptiques secretes



Turbulència, i la seva aplicació en oceanografia i ecologia

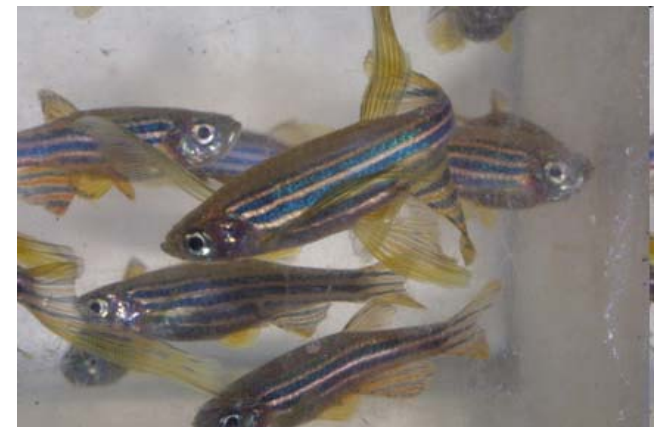


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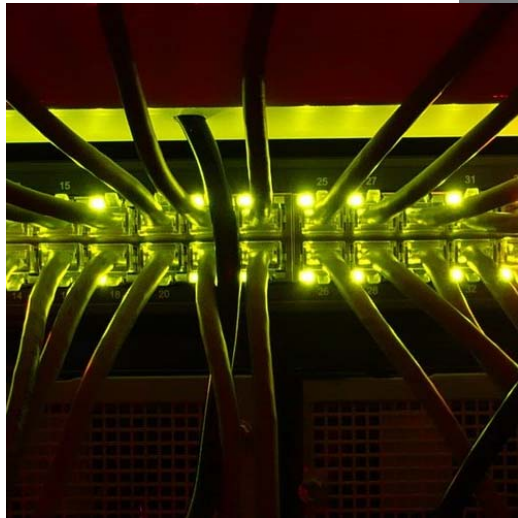




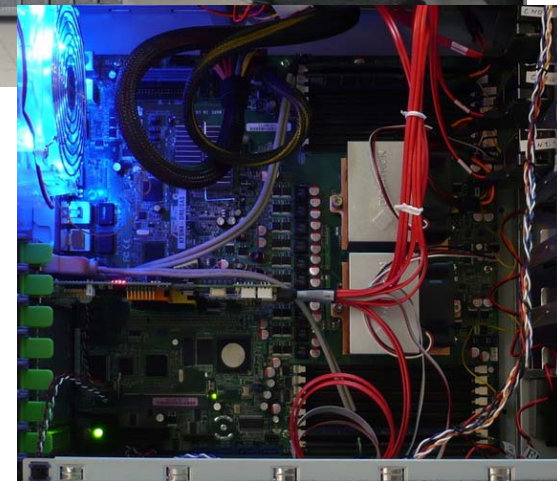
CLICK FOR MOVIE



Models del desenvolupament
de l'embrió de peix zebra



NUREDDUNA
El nostre computador principal.
340 processadors.
Porta d'entrada a Balears
de les xarxes espanyoles i
europees de supercomputació



<http://ifisc.uib-csic.es/nuredduna/>

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Connecting Science,
Understanding Complexity

RESEARCH LINES



- ▶ [Complex systems. Nonlinear and Statistical Physics](#)
 - ▶ [Quantum physics: photons, electrons and information](#)
 - ▶ [Nonlinear Optics and Dynamics of Optoelectronic Devices](#)
 - ▶ [Fluid dynamics, Biofluids, and Geophysical fluids](#)
 - ▶ [Biological Physics and nonlinear phenomena in ecology and physiology](#)
 - ▶ [Dynamics and collective phenomena of social systems](#)

Complex systems, a central paradigm at IFISC, are characterized by emergent and collective phenomena of many interacting units. Fundamental understanding of these systems comes from Statistical Physics together with the Theory of Dynamical Systems, which includes the study of chaos and the effect of fluctuations and random events on systems evolution. Generic phenomena under consideration include synchronization, phase transitions, nonequilibrium instabilities, spatiotemporal pattern formation, or dynamics and evolution of complex networks.

COMPUTING SERVICES UNIT

The Computing Services Unit manages the computational resources at IFISC. [Nuredduna](#) is our main computer cluster.

NEWS & EVENTS

- ▶ [International Workshop on 150 Years after Darwin: From Molecular Evolution to Language](#)
Palma de Mallorca, November 23 - 27, 2009
- ▶ [Any Darwin a les Illes Balears](#)
- ▶ [IFISC Open Days. 10-12, November](#)

[IFISC-MPIPKS Joint Workshop Program](#)
[Trends in Complex Systems](#)



BENVINGUTS !!!