

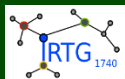
Chair of the conference: **Francesc Sagués**

Co-chair of the conference: **Markus Bär**

Organizing Committee:

Jordi Borrell, Jordi Ignés-Mullol, Ramón Reigada, Blas Echebarria,
Alexander Mikhailov, Holger Stark, Eckehard Schöll, Jürgen Kurths,
Katharina Krischer.

With the collaboration:



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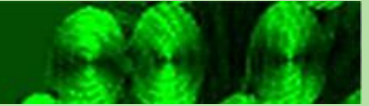
Berlin Center for Studies of Complex Chemical Systems

9th International Conference Engineering of Chemical Complexity

Neàpolis Auditorium, Vilanova i la Geltrú
(Barcelona)

19th-22nd June 2017

ECC9 PROGRAM



S.1. Minisymposium: Active colloids I/II

S.2. Minisymposium: Cell migration and tissues

S.3. Minisymposium: Fluctuations far from equilibrium

S.4. Minisymposium: Control of self-organization

S.5. Minisymposium: Active biological matter

S.6. Minisymposium: Chemical networks

S.7. Minisymposium: Synchronization

S.8. Minisymposium: Nanoscale patterns and nanomachines

S.9. Minisymposium: Biological self-organization

Acronyms:

S: Symposia

I: Invited talk

C: Contributed talk

MONDAY 19th

8.15-9.15h Accreditation

9.15-9.30h Presentation

9.30-10.45h **S.1. Minisymposium: Active colloids I (S. Sánchez, H. Stark)**

9.30-9.35h Presentation by minisymposium organizers

9.35-10.10h **I.1. A. Sen.** Collective Behavior of Self-Powered Single Molecules and Nano/Microparticles

10.10-10.45h **I.2. H. Lowen.** Magnetic microswimmer molecules

10.45-11.15h Coffee break

11.15-12.50h **S.1. Minisymposium: Active colloids II (S. Sánchez, H. Stark)**

11.15-11.40h **C.1. I. Pagonabarraga.** Collective behavior and pattern formation in actuated magnetic and Janus colloidal suspensions

11.40-12.05h **C.2. P. Tierno.** Non equilibrium transport and fractional plateaus in colloidal ratchet currents

12.05-12.20h **C.3. J. Blaschke.** Motility-Induced Phase-Separation of Microswimmers: Hydrodynamics and Phase-Equilibria

12.20-12.35h **C.4. J. Katuri.** Cross-streamline migration of active Janus particles in flow

12.35-12.50h **C.5. M. Tarama.** Swinging motion of active deformable particles in Poiseuille flow

12.50-14.30h Lunch

14.30-16.30h **S.2. Minisymposium: Cell migration and tissues (J. Casademunt, C. Beta)**

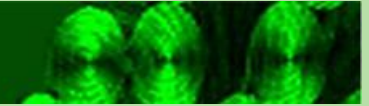
14.30-14.35h Presentation by minisymposium organizers

14.35-15.10h **I.3. K. Kruse.** Actin-wave driven migration - chance and necessity

15.10-15.45h **I.4. J. Solon.** *t.b.a*

15.45-16.00h **C.6. R. Alert.** Active wetting of epithelial tissues

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16.00-16.15h C.7. S. Alonso. From cell polarization to random crawling of individual amoebas

16.15-16.30h C.8. H. Chen. Cell lineage and linearized hydrodynamics of a stratified epithelium

16.30-17.00h Coffee break

17.00-18.00h Plenary speaker I: I. Epstein. A Synthetic Approach to Nonlinear Chemical Dynamics (or How to Engineer Chemical Complexity)

TUESDAY 20th

9.00-11.05h S.3. Minisymposium: Fluctuations far from equilibrium (J. M. Sancho, I. Sokolov)

9.00-9.05h Presentation by minisymposium organizers

9.05-9.40h I.5. C. Van Den Broeck. Brownian duet: a novel tale of thermodynamic efficiency

9.40-10.15h I.6. F. Ritort. *t.b.a*

10.15-10.50h I.7. B. Lindner. *t.b.a*

10.50-11.05h C.13. L. Dinis. Brownian Carnot Engine

11.05-11.35h Coffee break

11.35-12.50h Oral presentations I

11.35-11.50h C.9. R. Großmann. Active particles with internal clocks – detecting concentration gradients without memory

11.50-12.05h C.10. I. Lavi. Confined cell-fragment migration as an active droplet in a Hele-Shaw cell

12.05-12.20h C.11. V. Ruprecht. Modulating cell cortex dynamics and migration behavior by the 3D biomechanical microenvironment.

12.20-12.35h C.12. R. Sunyer. Collective cell durotaxis emerges from long-range intercellular force transmission.

12.35-12.50h C.14. A. Bonnefont. Stochastic Processes in Far From Equilibrium Mesoscopic Electrochemical Systems.

12.50-14.30h Lunch

14.30-16.30h S.4. Minisymposium: Control of self-organization (E. Schöll, O. Steinbock)

14.30-14.35h Presentation by minisymposium organizers

14.35-15.10h I.8. I. Z. Kiss. Phase-selective entrainment of nonlinear oscillator ensembles

15.10-15.45h I9. A. de Wit. Control of convective flows by chemical reactions

15.45-16.00h C.15. D. Gaskins. Turing Patterns from Turing-Hopf pattern invasion in the BZAOT reverse microemulsion reaction-diffusion system

16.00-16.15h C.16. S. Martens. Control of traveling localized spots.

16.15-16.30h C.17. A. Ziepke. Reaction-Diffusion Waves in Tubes With Spatially Modulated Cross Section: Propagation and Boundary Mediated Control

16.30-18.00 Coffee-break and Poster Session

WEDNESDAY 21st

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9.00-11.05h **S.5. Minisymposium: Active biological matter** (F. Sagués, M. Bär)

9.00-9.05h **Presentation by minisymposium organizers**

9.05-9.40h **I.10. J. Ignés-Mullol.** Control of active nematics by means of addressable soft interfaces

9.40-10.15h **I.11. L. Giomi.** Geometry, defects and motion in active matter

10.15-10.50h **I.12. F. Peruani.** Active particles in heterogeneous media

10.50-11.05h **C.18. D.A. Kulawiak.** Poroelastic two-phase model for droplets of *Physarum polycephalum* with free boundaries

11.05-11.35h **Coffee break**

11.35-13.20h **S.6. Minisymposium: Chemical networks** (M. A. Serrano, J. Kurths)

11.35-11.40h **Presentation by minisymposium organizers**

11.40-12.15h **I.13. T. Alarcón.** *t.b.a*

12.15-12.50h **I.14. G. Zamora-López.** *t.b.a*

12.50-13.05h **C.21. D. Hochberg.** Stoichiometric network analysis of spontaneous mirror symmetry breaking.

13.05-13.20h **C.22. N. Kouvaris.** Pattern formation in bistable networks: Theory and applications to chemical reactions

13.20-15.00h **Lunch**

15.00-16.50h **S.7. Minisymposium: Synchronization** (K. Krischer, H. Engel)

15.00-15.05h **Presentation by minisymposium organizers**

15.05-15.40h **I.15. M. Ziegler.** Synchronization of memristively coupled van der Pol oscillators

15.40-16.15h **I.16. J. Totz.** Experimental observation of spiral wave chimeras in coupled chemical oscillators

16.15-16.50h **I.17. S. Yanchuk.** Noise-resistance of oscillatory neural networks with adaptive coupling

17.00-22.00h **Social activities**

THURSDAY 22nd

9.00-11.00h **S.8. Minisymposium: Nanoscale patterns and nanomachines** (A. Mikhailov, R. Kapral)

9.00-9.05h **Presentation by minisymposium organizers**

9.05-9.40h **I.18. T. Ando.** Direct visualization of biological nanomachines in action by high-speed AFM

9.40-10.15h **I.19. G. Aromí.** *t.b.a*

10.15-10.30h **C.25. C. Barroo.** Field emission microscopy study of the emergence of chemical oscillations from nanosized target patterns.

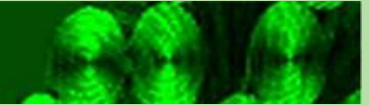
10.30-10.45h **C.26. J. Noel.** The operation of the dynamin molecular motor

10.45-11.00h **C.27. J. M. García Torres.** Magnetically assembled colloidal microswimmers

11.00-11.30h **Coffee break**

11.30-12.50h **Oral presentations II**

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11.30-11.50h **C.19. L. Pismen.** Chemical patterning and actuation of nematic elastomers

11.50-12.05h **C.20. V. Zykov.** Fast propagation regions cause spiral wave in an excitable medium

12.05-12.20h **C.23. Y. Izumida.** Energetics of hydrodynamic synchronization in coupled oscillators on circular trajectories

12.20-12.35h **C.24. V. Maistrenko.** Multiheaded scroll wave chimera states

12.35-12.50h **C.29. M. Stich.** Symmetry breaking in simple models of cooperative polymerization

12.50-14.30h Lunch

14.30-16.35h **S.9. Minisymposium: Biological self-organization (J. García-Ojalvo, M. Falcke)**

14.30-14.35h Presentation by minisymposium organizers

14.35 -15.10h **I.20. J. Jaeger.** *t.b.a*

15.10-15.45h **I.21. M. Ibañes.** Nonlinear interactions for self-organized discrete cellular patterns

15.45-16.20h **I.22. H. Youk.** Regulation of entropy, spatial order, and information in groups of communicating cells

16-20-16.35h **C.28. B. Echebarria.** Minimal model for calcium alternans due to calcium release refractoriness

16.35-17.00h Coffee break

17.00-18.00h Plenary speaker II: **J.F. Joanny.** *t.b.a*

18.00-18.15h Closure of the conference