

31st Summer SCHOOL – CONFERENCE ON DYNAMIC SYSTEMS AND COMPLEXITY

UNIVERSITY OF THESSALY
DEPARTMENT OF COMPUTER SCIENCE AND BIOMEDICAL INFORMATICS
LAMIA, JULY 7 – 15, 2025

DAILY PROGRAMME

Monday, July 7

Chairman: Vasileios Drakopoulos

09:00 – 10:00: Welcome speeches

Breakfast

11:00 – 12:00: **Anastasios Bountis** (University of Patras)
«Μη γραμμική δυναμική και χάος»

12:00 – 13:00: **Stavros Anastassiou** (University of W. Macedonia)
“Hyperbolic theory of dynamical systems”

Lunch Break

Chairman: Theodoros Karakasidis

15:00 – 16:00: **Jamal-Odysseas Maaita** (Democritus University of Thrace)
«Υλοποίηση μη γραμμικών δυναμικών συστημάτων με τη βοήθεια μη γραμμικών ηλεκτρονικών κυκλωμάτων»

Coffee Break

17:00 – 18:00: **Vasileios Rothos** (Aristotle University of Thessaloniki)
“Localized Structures in saturable Discrete NLS Equation with next-nearest-neighbor interactions”

19:00 – 22:30: Welcome reception at the archaeological site of Lamia Castle

Tuesday, July 8

Chairman: Stavros Anastassiou

09:00 – 10:00: **Michalis Xenos** (University of Ioannina)
“Turbulent flow and the phenomenon of intermittency”

Breakfast

- 11:00 – 12:00: **Theodoros Horikis** (University of Ioannina)
“A crash course on dispersive shock waves”
- 12:00 – 13:00: **Ioannis Kourakis** (Khalifa University of Science and Technology)
“Everything you always wanted to know about solitons in plasmas”

Lunch Break

Chairman: Jamal-Odyseas Maaïta

- 15:00 – 16:00: **Vasileios Drakopoulos** (University of Thessaly)
“Fractal Geometry: Theory and Applications”

Coffee Break

- 17:00 – 18:00: **George Voyatzis** (Aristotle University of Thessaloniki)
«Το περιορισμένο πρόβλημα των τριών σωμάτων και το δυναμικό περιβάλλον του διπλού αστεροειδή 65803 Δίδυμος»

Wednesday, July 9

Chairman: Anastasios Bountis

- 09:00 – 10:00: **Abhay Ram** (M.I.T.)
“From classical tranquility to quantum exploration – reflections on friendship fermented by physics”

Breakfast

- 11:00 – 12:00: **J. T. Mendonça** (University of Lisbon)
“Two Waves - One Particle”
- 12:00 – 13:00: **Kyriakos Hizanidis** (National Technical University of Athens)
«Κβαντική υπολογιστική σε ηλεκτρομαγνητικά προβλήματα στο μαγνητισμένο πλάσμα: Από τη «Στρεντιγκεροποίηση» στις γεωμετρικές άλγεβρες Κλίφορντ»

Lunch Break

Chairman: Vassilis Koukouloyannis

- 15:00 – 16:00: **Nikolaos Efremidis** (University of Crete)
“A unified description of optical thermodynamics”

Coffee Break

- 17:00 – 18:00: **Yannis Kominis** (National Technical University of Athens)
“Hamiltonian dynamics for plasma physics and fusion”

Thursday, July 10

Chairman: Yannis Kominis

09:00 – 10:00: **Vassilis Koukouloyannis** (University of the Aegean)
«Περιοδικές τροχιές και δυναμικά συστήματα»

Breakfast

11:00 – 12:00: **Christos Efthymiopoulos** (University of Padua)
«Συντονισμοί και διάχυση Arnold»

12:00 – 13:00: **Panos Patsis** (Academy of Athens)
“Hamiltonian dynamics and structure formation in disk galaxies”

Lunch Break

Chairman: George Papaioannou

15:00 – 16:00: **Maria (Mirella) Harsoula** (Academy of Athens)
«Σπειροειδείς γαλαξίες: Αριθμητικά και αναλυτικά σπειροειδή κύματα πυκνότητας»

Coffee Break

17:00 – 18:00: **(Online) Charalampos Skokos** (University of Cape Town)
“Numerical methods of chaos detection”

18:00 – 19:00: **Johanne Hizanidis** (Foundation for Research and Technology)
“Superconducting oscillators: From complex dynamics to neuromorphic computing”

Friday, July 11

Chairman: J. P. Van der Weele

09:00 – 10:00: **Dimitris Kugiumtzis** (Aristotle University of Thessaloniki)
«Πολύπλοκα δίκτυα και χρονοσειρές»

Breakfast

11:00 – 12:00: **Theodoros Karakasidis** (University of Thessaly)
«Ανάλυση και εφαρμογές χρονοσειρών σε χωροχρονικά φαινόμενα»

12:00 – 13:00: **Pavlos Kassotakis** (University of Patras)
“On non-abelian elastic collisions”

Lunch Break

Chairman: Panos Patsis

15:00 – 16:00: **Anastasios Bountis** (University of Patras)

«Γιατί ονομάζουμε την πολυπλοκότητα επιστήμη»

Coffee Break

- 17:00 – 18:00: **George Papaioannou** (CRANS)
“Why Power Prices Spike in Southeast Europe: A Machine Learning Insight”
- 18:00 – 19:00: **Athanasios C. Tzemos** (Academy of Athens)
“Bohmian chaos and the origin of Born’s rule”

Saturday, July 12

Chairman: Dimitris Kugiumtzis

- 09:00 – 10:00: **J. P. Van der Weele** (University of Patras)
“Granular dynamics”

Coffee Break

- 11:00 – 12:00: **Anastasios Bezerianos** (University of Patras)
“EEG and fMRI techniques and biomarkers on brain complexity and dynamics”
- 12:00 – 13:00: **Filippos Vallianatos** (National and Kapodistrian University of Athens)
“Non-Extensive Statistical Physics and Beck-Cohen Superstatistics Applied to Gutenberg-Richter, Omori, and Cumulative Benioff Strain Patterns”

Coffee Break

- 15:00 – 16:00: Posters
- 19:00 – 01:00: Conference Dinner

SUNDAY JULY 13

EXCURSION

Thermopylae's Innovative Centre of Historical Information

Monday, July 14

Chairman: Anastasios Bezerianos

- 09:00 – 10:00: **Efthymia Meletlidou** (Aristotle University of Thessaloniki)
«Χάος, συμβολική δυναμική και θεωρία Melnikov»

Breakfast

11:00 – 12:00: **Vassilios Constantoudis** (NCSR “Demokritos”)
«Μορφοκλασματική γεωμετρία και πολυπλοκότητα επιφανειών με εφαρμογές στη μικροηλεκτρονική και νανοτεχνολογία»

12:00 – 13:00: **Vasileios Drakopoulos** (University of Thessaly)
“Fractal Interpolation Functions”

Lunch Break

15:00 – 16:00: Early-career, young researchers

Coffee Break

17:00 – 18:00: **CRANS awards**

Tuesday, July 15

Chairman: Efthymia Meletlidou

9:00 – 10:00: **J. M. Halley** (University of Ioannina)
“Hyper-exponential growth: from epidemic models to the evolution of society”

Breakfast

11:00 – 12:00: **Constantinos Simserides** (National and Kapodistrian University of Athens)
“Periodic, quasi-periodic, fractal and random DNA sequences: charge transfer and transport”

12:00 – 13:00: **Conclusions**

Lunch Break

15:00 – 16:00: **Closing of the 31st Summer School – Conference**