

**Centro Interdipartimentale di Matematica per la Tecnologia
(CIMAT)
A. M. Anile
Università degli Studi di Catania**

**ADVANCE IN MATHEMATICS FOR TECHNOLOGY 2017
(AMATH 2017)**

Catania, October 9-11 2017

Villa Citelli

Programme

CIMAT

CENTRO INTERDIPARTIMENTALE DI MATEMATICA
PER LA TECNOLOGIA "A. M. ANILE"

Monday October 9

8:30-13:00 Registration

9:00- 9:30 Welcome and salutations

9:30-10:30 Plenary speaker: **Luis Bonilla**, Universidad Carlos III de Madrid

Understanding angiogenesis through modeling and asymptotics

10:30-11:00 Invited speaker: Tommaso Ruggeri, University of Bologna

Rational Extended Thermodynamics of Rarefied Polyatomic Gas and Interplay with Kinetic Theory.

11:00-11:30 coffee break

11:30-12:00 Invited speaker: Andrea Sacchetti, University of Modena-Reggio Emilia

Nonlinear models and bifurcation trees in Quantum Mechanics

12:00-12:30 Invited speaker: Alessandro Teta, University of Rome La sapienza

Efimov effect in a fermionic three-particle system

12:30 – 13:00 Invited speaker: Paolo Bordone, University of Modena-Reggio Emilia

Quantum walks on a bidimensional lattice in the presence of a magnetic field

13:00-15:00 lunch break

15:00-16:00 Plenary speaker: **Luca Formaggia**, Politecnico di Milano

Modelling of liquid packaging systems, an example of technological transfer

16:00-16:30 Invited speaker: Giuseppe Dattoli, ENEA Rome

Laser, Accelerator Physics, Fusion...Is there any interesting problem for mathematicians?

16:30-17:00 Invited speaker: Carlo De Falco, Politecnico di Milano

Multiscale Numerical Models For Industrial Applications

17:00-17:30 Invited speaker: Antonino La Magna, IMM-CNR Catania

Integration of ab-initio and mathematical models for material science applications

17:30-18:00 Speaker: Lidia Saluto

Two effects of heat transport in superfluid helium in polarized vortex tangles

18:00-18:20 Speaker: Stavros Avgerinos, University of Catania

Numerical methods for multi scale hyperbolic problems, with application to multi fluid and sedimentation.

18:20 Award of the Anile prize

19:00 welcome cocktail, and theatrical performance

Tuesday October 10

9:00-10:00 Plenary speaker: **Florian Méhats**, Université of Rennes 1

Highly oscillatory problems: application of averaging techniques to a uniformly accurate numerical method

10:00-10:30 Invited speaker: Fabio Bagarello, University of Palermo

Deformed commutation relations and their bi-coherent states: mathematical and physical results

10:30-11:00 Invited speaker: Omar Morandi, University of Florence

Quantum motion with trajectories: a variational method

11:00-11:30 coffee break

11:30 -12:00 Invited speaker: Alfio Borzi, University of Wuerzburg

Formulation and analysis of a piecewise-deterministic Liouville transport problem

12:00 -12:30 Invited speaker: Giovanni Mascali, University of Calabria

Thermoelectric properties of semiconductors

12:30 -13:00 Invited speaker: Marco Coco, University of Catania

An electron-phonon transport model in suspended monolayer graphene including all the phonon branches

13:00-15:00 lunch break

15:00-16:00 Plenary speaker: **Luca Heltai**, SISSA Trieste

Unconventional frameworks for the numerical solution of fluid-structure interaction problems

16:00-16:30 Invited speaker: Marco Sammartino, University of Palermo

Analytic solutions of the 2D Navier-Stokes equations with concentrated vorticity

16:30-17:00 Invited speaker: Maria Groppi, University of Parma

Kinetic relaxation models for gas mixtures: theory and numerics

17:00-17:30 coffee break

17:30-18:00 Invited speaker: Francesco Salvarani, University of Pavia

Cross diffusion equations for non-isothermal gaseous mixtures

18:00-18:30 Invited speaker: Silvia Lorenzani, Politecnico di Milano

Analysis of gas rarefaction effects in Micro-Electro-Mechanical-Systems (MEMS) devices on the basis of the Boltzmann equation

18:30-18:50 Speaker: Liliana Luca, University of Catania

Comparing linear and nonlinear hydrodynamical models for charge transport in graphene based on the Maximum Entropy Principle

18:50-19:10 Speaker: Giovanni Nastasi, University of Catania

High-field mobility in graphene on substrate with a proper inclusion of the Pauli exclusion principle

20:30 social dinner

Wednesday morning October 11

9:00-10:00 Plenary speaker: **Jan Haskovec**, King Abdullah University of Science and Technology, Saudi Arabia

Discrete and continuum modeling of biological network formation

10:00-11:00 Plenary speaker: **Giuseppe Saccomandi**, University of Perugia

The role of material behavior in the performances of electroactive polymer energy harvesters

11:00-11:30 coffee break

11:30 -12:00 Invited speaker: Franco Oliveri, University of Messina

Continua with non-local constitutive laws: exploitation of entropy inequality

12:00 -12:30 Invited speaker: Vito Antonio Cimmelli, University of Basilicata

Heat flux rectification in graded $Si_c Ge_{1-c}$

12:30 -13:00 Invited speaker: Alfio Grillo, Politecnico di Torino

Salinity-driven flow in fractured porous media: full-dimensional versus low-dimensional models

13:00 Closing ceremony