Research interests

• Key-words: Continuum Thermomechanics, Materials with memory, Asymptotic stability, Global attractor, Electromagnetic materials, Phase transition phenomena, Functionally graded materials, Pin fins.

• ERC subject classification: PE1 Mathematics
– PE1-08 Analysis
– PE1-12 Mathematical physics

• The scientific interests concern the analysis of integro-partial differential equations of mathematical physics with special attention to both theoretical and application points of view.

– Continuum thermomechanics: foundations of thermodynamics, modeling of viscoelastic and thermoviscoelastic solids, modeling of ferromagnetic and ferroelectric materials, modeling of non-newtonian fluids. Thermodynamics compatibility.

– Materials with memory: dynamics in viscoelasticity and thermoviscoelasticity, longtime behavior of solutions to integro-partial differential systems arising from materials with memory, absorbing sets and global attractors.

– Electromagnetic materials: modeling of electromagnetic materials with memory, variational principles, free energies and phase transitions phenomena, hysteresis.

– Electromagnetic materials: modeling of ferromagnetic and ferroelectric materials undergoing large deformations.

– Functionally graded materials: thermal diodes. Convecting-radiating fins: efficiency and optimization.