ABOUT US

The Institute for Applied Computing (IAC) "Mauro Picone" is a research institute of the National Research Council (CNR), operating within the Department of Engineering, ICT and Technologies for Energy and Transport (DIITET).
The IAC's mission is to develop advanced mathematical, statistical, and computational methods to address problems of significant social and industrial importance. Its approach is primarily interdisciplinar, spanning a wide range of fields including engineering, medicine, biology, environmental science, finance and economics, information and communications technology (ICT), cultural heritage, and production systems.

SMII
SPORTELLO MATEMATICO PER L'INNOVAZIONE E LE IMPRESE

Mathematics in support of innovation and society.
A network of research partners that builds a project bridge between the Italian mathematical community and the business world, transforming complex challenges into innovative and practical solutions.

Comics & Science

Comics&Science is a series published by CNR Edizioni and directed by IAC. The series aims to promote the relationship between science and entertainment through comics in order to foster the cultural and scientific education of the new generations.

A team of approximately 80 employees - including researchers, technologists, technical and administrative staff - is supported by numerous collaborators in the research activities. These include research fellows, associates, PhD students, scholarship recipients, and trainees.

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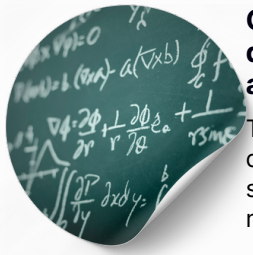
Consiglio Nazionale delle Ricerche

RESEARCH AREAS

Research activities are organised into eight thematic areas, all with a strong interdisciplinary focus. These are complemented by 'third mission' initiatives, which include the dissemination of research outcomes and technology transfer.

Optimization, discrete mathematics and decision science

Global optimisation algorithms for constrained and unconstrained problems, Intelligent Transport and Advanced Sustainable Logistics, and mathematical models for decision support.



Qualitative and numerical analysis of differential and stochastic models for applications

Theory and numerical solution of models driven by differential equations; analysis of Poissonian systems; traffic problems; differential games; mathematical models for economics and finance.

Data Science and Artificial Intelligence for Signals and Images

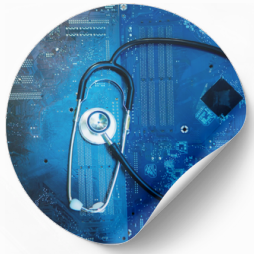
Analysis and processing of signals, images and multidimensional data using mathematical, statistical and AI methods. Development of new methods for data science.

Mathematical models and numerical simulation of fluid, classical and quantum-relativistic matter

Models and simulations of particles and fluids under classical, quantum and relativistic conditions. Fluid and condensed matter dynamics in cosmology, engineering, the environment and biofluidics at the electronic, nuclear and subnuclear scales.

Mathematics for the Environment

Mathematical modelling for the study of ecosystems and environmental fluid dynamics, remote-sensing, data analysis for atmospheric modelling, climatology and pollutant detection.



Mathematics for Health and Biomedical Sciences

Development of new algorithms, analysis methods and predictive models with applications in basic biology (protein folding, gene regulation, multi-omics data analysis and integration, etc.) and in diagnostic and therapeutic medicine (processing of biomedical images and signals, optimisation of immunotherapies, etc.).

Mathematical Methods for the Diagnosis and Preservation of Cultural Heritage

Study of the chemical, physical and mechanical characteristics of shape memory copper and iron alloys. Study of the structural damage to stone materials exposed to chemical attack. Study of visitor behaviour inside museums to optimise usage.

Models, Algorithms and Software for Data Analytics, HPC and Cybersecurity

Study of data integrity, confidentiality and authenticity; emulation and analysis of hardware/software systems; cybersecurity; AI; cyber-insurance; economic aspects of security; cryptanalysis; numerical methods and software design for Computational Science and Data Analysis on HPC architectures.