

Olivier Saut

Olivier.Saut@u-bordeaux.fr | saut.perso.math.cnrs.fr

Date of Birth: October 7, 1976

Nationality: French

Address: [Institut de Mathématiques](#), CNRS UMR 5251, Université Bordeaux, 351 cours de la Libération, 33405 Talence cedex, France

Current position

Senior Research Scientist, CNRS.

Scientific Delegate at [CNRS Mathématiques](#), responsible for thematic research networks, sustainable development and Health research topics.

Academic Career

- Student at ([ENS Paris Saclay](#)), 1997 – 2000
- Teaching and Research Assistant (Moniteur), [INSA Toulouse](#), CEA Research-Training Contract, 2000–2003
- Temporary Teaching and Research Associate (ATER), [INSA Toulouse](#), 2003–2005
- Temporary Teaching and Research Associate (ATER), [Université Bordeaux](#), 2005–2006
- Research Scientist (Chargé de Recherche), CNRS, Section 01, 2006–2015
- Senior Research Scientist (Directeur de Recherche) CNRS, Section 51. 2015–present

Degrees and Qualifications

- Master's in *Partial Differential Equations and Scientific Computing*, Université Paris Saclay, 2000,
- Agrégation in mathématiques, 2000,
- PhD in Applied Mathematics, INSA Toulouse: *Numerical Study of Nonlinearities in a Crystal by Solving Maxwell-Bloch Equations* defended on December 16, 2003.,
- Habilitation à diriger des recherches (HDR), Université Bordeaux, Applied Mathematics: *Contributions to Nonlinear Optics and Tumor Growth Modeling for Clinical Applications* defended on September 25, 2012.

Administrative and Scientific Responsibilities

In addition to participating in numerous PhD defense committees, recruitment panels, and steering committees (Labex TRAIL, Oncosphere, Plan Cancer HTE), I have held the following positions:

- Member of the Research Ethics Committee, Université de Bordeaux, 2024–present
- Scientific Delegate, CNRS Mathematics, 2023–present
- Interdisciplinarity Officer at INSMI and member of the CNRS MITI Steering Committee, 2017–2023
- Head of the [INRIA Monc Team](#), 2016–2022
- Member of the *AI and Medicine Working Group*, Académie des Sciences and Académie de Médecine, 2018–2022
- Director of the CNRS GDR Metice, 2012–2016

I have also served as an expert for various national (ANR, Plan Cancer, PHC at MESR) and international programs (Germany, Poland, Ireland, Canada).

Scientific Activity

My research initially focused on **mathematical modeling in nonlinear optics**, particularly during my PhD and the following years, where I explored theoretical and numerical approaches to describe the complex physical phenomena governing light-matter interactions. Since joining Bordeaux, my primary focus has shifted to **cancer modeling**, with the goal of capturing the key biological mechanisms underlying tumor growth and treatment response. I initially developed **models based on partial differential equations** (PDEs), coupled with tailored numerical methods to simulate these dynamics. More recently, I have expanded this approach by integrating **clinical applications**, leveraging **medical imaging** and **artificial intelligence** tools to refine modeling, personalize predictions, and facilitate the translation of research into practical oncological applications.

My scientific output is listed on my [website](#). Beyond publications and interdisciplinary conference proceedings (applied mathematics in physics, biology, and medicine; machine and deep learning; medical image processing), it includes several software tools, one of which led to an industrial transfer (following a patent filing). I have supervised 14 PhD theses, some in joint supervision.

I have built an interdisciplinary collaboration network with teams in mathematics, biology (LAMC, BRIC), and medicine (Institut Bergonié, CHU Bordeaux, APHP, Univ. Milan, Univ. Alabama), as well as industrial partners (Roche, Sophia Genetics). My funding sources are diverse (ANR, Plan Cancer, INRIA, CNRS, INSERM, Région, Plan de Relance, Fondation MSD Avenir, BPI).

I am also involved in outreach activities on the theme of AI and Medicine (Fête de la Science, Université Populaire, Scientific Days at Institut Bergonié, patient and cultural associations such as ACCHLA).