

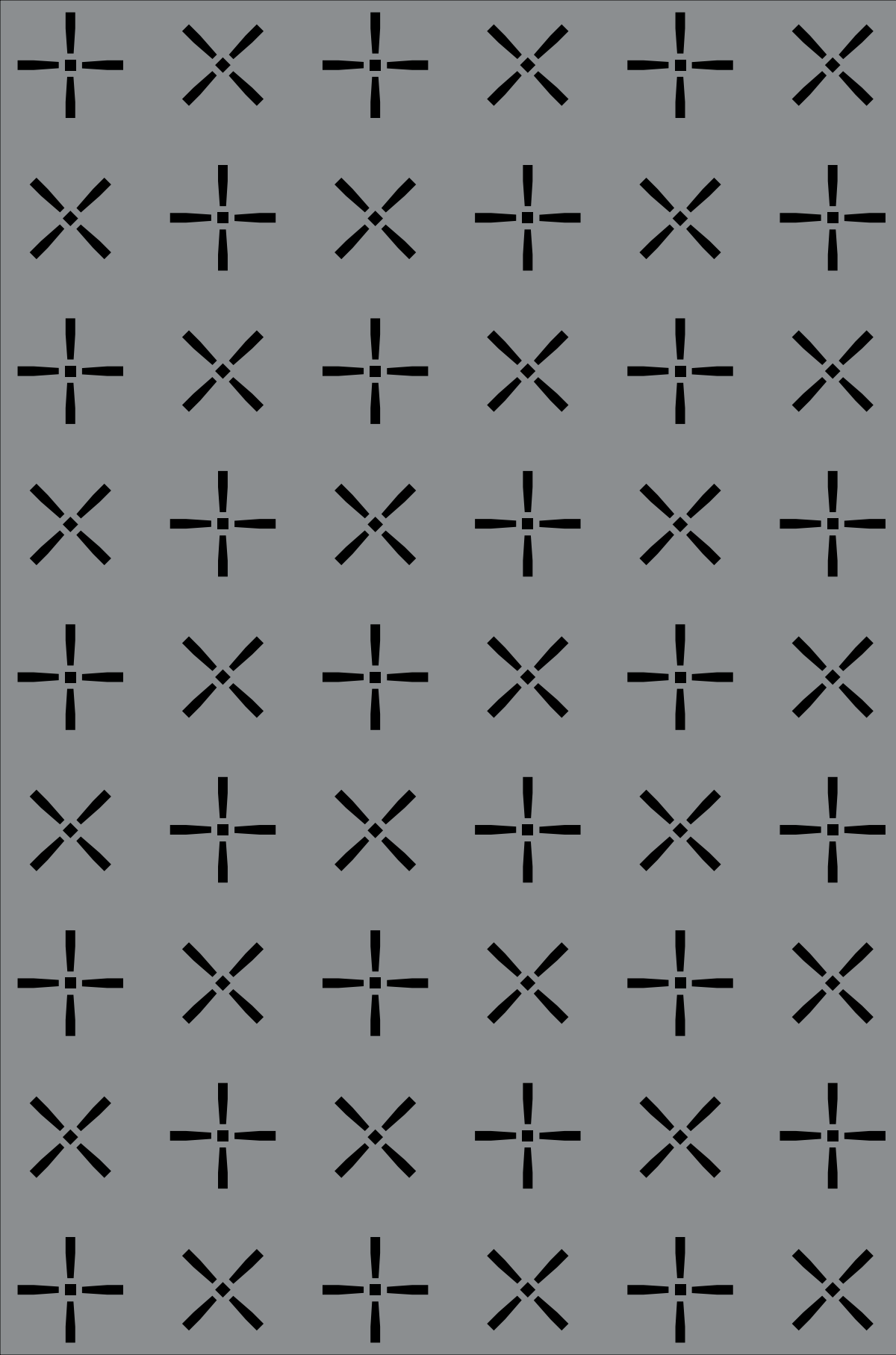
SISSA



**Scuola Internazionale
Superiore di
Studi Avanzati**

Founded in 1978,
**SISSA - Scuola
Internazionale
Superiore di Studi
Avanzati** is a leading
scientific institute
at the national and
international level.

The number of
publications in high-
profile journals
and international
collaborations as well
as the level of European
funding confirm the
School's **excellence**
**in research and post-
graduate training.**



SISSA is located in **Trieste**, a multicultural city with one of the highest concentrations of researchers in Europe. The School, with its 25 acre park, is positioned on the scenic Karst upland and offers a stunning view of the Gulf of Trieste, extending to Slovenia and Croatia.

SISSA's activities focus on three main areas: **Mathematics, Neuroscience and Physics**. Moreover, the **Interdisciplinary Laboratory for Advanced Studies** works at the interface between science, humanities and the public.

The School has also a strong commitment to establishing fruitful connections with various social and economic players through **technology transfer and knowledge dissemination actions**.



Outstanding scientists, major achievements

The presence of **internationally renowned scientists** has always been the key to SISSA's excellence in research and education.

The level of European funding received confirms the merit of the School's scientific activity. In particular, SISSA ranks in the highest position among the Italian scientific institutions in terms of awarded **European Research Council** grants.

At the Italian level, the School has always ranked **at the top** in Mathematics, Neuroscience and Physics in the national research quality assessment carried out by the Italian National Agency for the Evaluation of the University System and Research (ANVUR).

The excellence of SISSA research is also attested by the quantity and quality of publications in **leading international journals** and by the many **collaboration agreements** with the most prestigious scientific organizations in the world. Through Sissa Medialab, a company owned by SISSA, the School publishes several **high-profile international scientific journals** in physics, like JHEP, JCAP, JSTAT, JINST, and in science communication JCOM.



Top level education

Post-graduate training has always been at the core of SISSA's activities.

The School offers **12 PhD courses** with an original and innovative program that represents an international reference model. Continuous interaction with supervisors and research groups allows the student to follow personalized training pathways and develop a unique line of research.

The large majority of SISSA's former PhD students find employment in academic faculty positions, after an initial post-doc period in highly prestigious centres around the world.

SISSA also organizes **professional Master's courses** at the highest level in High Performance Computing and in Science Communication. The School participates in some *curricula* of **Master's Degree** in collaboration with the Universities of Trieste, Udine and Trento and, together with the Politecnico di Torino, in an international Master's Degree that also involves a few Paris Universities.

The School offers an **international environment**, as 50% of post-docs and over 30% of PhD students come from abroad. All teaching activities are carried-out in English.





Beyond the barriers

Combining basic research with **technology transfer and knowledge dissemination** is SISSA's interpretation of the word "innovation".

The School has been constantly working to prove itself as an important player in dialoguing with other social stakeholders, entrepreneurship and the economic world. To pursue this goal, the School has set up collaborations with important public and private organizations. **SISSA Technology Transfer Service** plays a crucial role in this process.

Among SISSA activities and projects, the School has set up one of the most powerful computing centres in Italy in collaboration with the International Centre for Theoretical Physics "Abdus Salam" - ICTP. The **High Performance Computing - HPC** centre is used for scientific research as well as technological and industrial applications. The School is also home to **mathLab**, a multidisciplinary laboratory for the application of mathematical models and numerical simulations.

M

MATHEMATICS

NEUROSCIENCE

N

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PHYSICS

ILAS

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From theory to application

The research activity of the Mathematics Area explores the discipline in its theoretical aspects and in potential applications. The main research fields include **geometry, mathematical analysis, numerical analysis and scientific computing, mathematical physics and mathematical modelling.**

The Area is involved in the activities of two laboratories: **mathLab** and **SAMBA**, an experimental laboratory dedicated to research in the fields of motility at the micro-scale, bio-inspired shape morphing, and tactile perception, in collaboration with the Cognitive Neuroscience Group.

PHD COURSES

- GEOMETRY AND MATHEMATICAL PHYSICS
- MATHEMATICAL ANALYSIS, MODELLING, AND APPLICATIONS

MASTER'S COURSES

- DATA SCIENCE AND SCIENTIFIC COMPUTING, WITH THE UNIVERSITIES OF TRIESTE AND UDINE
- MATHEMATICS, WITH THE UNIVERSITY OF TRIESTE





Solving nature's ultimate puzzle, the brain

The activity of the Neuroscience Area aims at exploring the brain and nervous system functions from different perspectives, in health and disease.

Three research groups are working in the fields of **cognitive neuroscience, genomics and molecular biology** and **neurobiology**.

In collaboration with the Mathematics Area, the Cognitive Neuroscience group is also involved in **SAMBA**.

PHD COURSES

- COGNITIVE NEUROSCIENCE
- FUNCTIONAL AND STRUCTURAL GENOMICS
- NEUROBIOLOGY
- JOINT PHD PROGRAMME IN MOLECULAR BIOLOGY IN COLLABORATION WITH THE INTERNATIONAL CENTRE FOR GENETIC ENGINEERING AND BIOTECHNOLOGY - ICGEB AND THE UNIVERSITIES OF TRIESTE AND UDINE

MASTER'S COURSES

- COGNITIVE NEUROSCIENCE, WITH THE UNIVERSITY OF TRENTO
- NEUROSCIENCE, WITH THE UNIVERSITY OF TRIESTE

Research at all length scales

SISSA physicists are engaged in a broad range of topics, going from the birth of the universe and the understanding of Nature at its most fundamental level to the study of the complexity of matter and its surprising behaviours, also leading to notable industrial collaborations.

The Physics Area main research fields are **astroparticle physics, astrophysics, condensed matter, molecular and statistical biophysics, statistical physics, theoretical particle physics.**

PHD COURSES

- ASTROPARTICLE PHYSICS
- ASTROPHYSICS
- PHYSICS AND CHEMISTRY OF BIOLOGICAL SYSTEMS
- STATISTICAL PHYSICS
- THEORETICAL PARTICLE PHYSICS
- THEORY AND NUMERICAL SIMULATION OF CONDENSED MATTER

MASTER'S AND SPECIAL COURSES

- MSC PHYSICS, WITH THE UNIVERSITY OF TRENTO
- ADVANCED TRAINING PROGRAMME FOR A PHD IN CONDENSED MATTER, WITH THE UNIVERSITIES OF TRIESTE AND UDINE (FAST TRACK)
- INTERNATIONAL MSC IN PHYSICS OF COMPLEX SYSTEMS, WITH ICTP AND POLITECNICO DI TORINO AND SOME UNIVERSITIES OF THE PARIS AREA





Between science and society

SISSA Interdisciplinary Laboratory for Advanced Studies – ILAS aims at combining **scientific and humanistic cultures** and exploring **cross-cultural connections** between art, ethics, history, philosophy and science. In this framework, ILAS organizes public events embracing themes of literature, film, photography, philosophy and history.

ILAS has taken part in several European projects dedicated to **science communication** and exploring the connections between **science and society**.

PROFESSIONAL MASTER'S COURSES

- MCS – MASTER'S IN SCIENCE COMMUNICATION "FRANCO PRATTICO"
- MHPC – MASTER IN HIGH PERFORMANCE COMPUTING, WITH ICTP

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