



A top european school

This is SISSA of Trieste. The research fields, supported by Erc, are part of its study areas: neurosciences, mathematics and physics

Excellence in research to meet the scientific challenges of the future. Testifying to the success of SISSA is the recent VQR (Evaluation of Research Quality), drawn up by the National Agency for the Evaluation of the University and Research Systems, which places it among our country's top universities. Further proof: the substantial international funding obtained, particularly from the ERC (European Research Council). The ERC is among the most prestigious and selective research organizations in Europe, investing only in projects of the highest profile. A good 17 have been won by SISSA in the last ten years, a result which, in relation to the number of faculty investigators, places the School at the highest levels in Europe. All three of SISSA's research fields -- neuroscience, mathematics and physics - are supported by the ERC. In the neuroscience sector, "STATLEARN", coordinated by Davide Crepaldi, deals with the understanding of how our reading skills depend on the fact that the brain unconsciously identifies recurring patterns in the way that letters are organised to form words. The "BiT" project, led by Domènica Bueti, studies the neuronal processes underlying the perception of time, exploring whether there is a cerebral topography in the brain's clocks, and asking "when" and "how" the clocks interact. Mathew Diamond's "CONCEPT" project investigates the neuronal basis of tactile perception to understand the mechanisms by which the brain converts a series of elementary physi-

cal events into the representation of a more complex and meaningful object. Davide Zoccolan, with "LEARN2SEE", studies the neuronal processes giving rise to visual object recognition, positing that processing is determined by the spatiotemporal statistics of the visual environment experienced during early postnatal development. One worth mentio-

is developing reduction techniques for numerical simulation in real time, in order to export and develop scientific computing in fields where at the moment there is still little exploitation, for example in complex system design for industry and hospitals. The focus is on mathematical models and numerical methods for fluid dynamics. Finally, Jacopo



ning in the area of physics is Giovanni Bussi's "S-RNA-S" project, which studies the movements and interactions of RNA molecules by using computer models. RNA is the "less famous cousin" of DNA but its dynamics in the cell play a fundamental role in controlling the expression of the genes. In the area of mathematics the "AROMA-CFD" project, headed by Gianluigi Rozza,

Stoppa and other members of the project "StabAGDG" work on some basic open questions in mathematics and mathematical physics. They study Einstein's equations of gravitation and the Yang-Mills equations of particle physics using advanced tools drawn from complex differential, algebraic and enumerative geometry, unveiling new hidden structures in the process.