

Science Without Borders: From Infinitely Small to Infinitely Large

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Particle accelerators such as the Large Hadron Collider (LHC) at CERN, located at the Swiss-French border close to Geneva, are super-microscopes that allow us to explore the microcosm by studying in-depth the interactions between the basic building blocks of matter. On the other hand, the LHC is also a "time machine" that enables us to investigate the physical laws from the very first moments of the universe.

We shall address fundamental questions regarding the structure and evolution of the universe by linking the infinitely small with the infinitely large. On this journey through space and time, major technical challenges (accelerator, experiment, and computing) will be exemplified.

The lecture will shed light on the current status and future prospects of this fascinating research. The connection between challenges in basic research and innovation plays just as important a role as the dynamics of managing big projects in very large international teams.