



**Venerdì 8 Aprile**  
**Aula Wataghin, ore 14:30**

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## **The Higgs mechanism** **and the origin of mass**

The Higgs mechanism plays a key role in the physics of elementary particles: in the context of the Standard Model, the theory which describes in a unified framework the electromagnetic, weak and strong interactions, it allows for the generation of particle masses while preserving the mathematical consistency of the theory. This mechanism predicts the existence of a new type of particle, the scalar Higgs boson, with unique characteristics. The detection of this particle and the study of its fundamental properties is a major goal of high-energy particle colliders, such as the CERN Large Hadron Collider. In this talk, I present an introduction to the Standard Model and the Higgs mechanism for mass generation, summarize the basic properties of the scalar Higgs particles and discuss the prospects for producing and studying them at the LHC. The Higgs sectors of some scenarios for new physics beyond the Standard Model will be commented upon.