



Mercoledì 9 Dicembre 2015, ore 15:30, Aula Magna
(Istituto di Fisica, Via Giuria 1)

Prof. Pietro Fré

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100 years of General Relativity, looking into the future

General Relativity is at the same time a concrete and so far verified Physical Theory and a Philosophical Paradigm that has deeply influenced the whole development of Fundamental Science in the XX century. The conceptual history of GR is reviewed from its roots in XIX century Mathematics up to the present. Its exceptional relevance in directing Physical Thinking of the XX century and in framing Cosmology, Astrophysics and the theoretical quest for the Fundamental Laws of Nature is emphasized. Black Holes constitute one of the most striking implications of GR that are observed in Astrophysics and provide deep connections with Quantum Physics, current development of Unified Theories and Philosophy. Gravitational waves, the intrinsic most fundamental prediction of GR, have not yet been directly detected, but their existence is indirectly verified through the slowing down of rotation periods in binary systems of compact stars. G-wave Astronomy is expected to be born very soon, with the help of upgraded interferometers. It will provide an entire new picture of the Universe, giving GR an even stronger place in the Physical Research and Thought of the XXI century.