POLITECNICO DI TORINO

Colloquium by

Prof. Sergio Ferrara

winner of the 2019 Special Breakthrough Prize in Fundamental Physics
with Daniel Z. Freedman and Peter van Nieuwenhuizen

" for the invention of **Supergravity**, in which quantum variables are part of the description of the geometry of space time. "

Supersymmetry

Reflections on the Future of a Symmetry from the Future

January 20, 2020, Politecnico di Torino, Sala Consiglio di Facoltà, 5:30 p.m.

" The discovery of Supergravity was the beginning of including quantum variables in the dynamics of spacetime, it is quite striking that Einstein's equations admit the generalization that we know as supergravity. "
(Prof. Edward Witten, chair of the selection committee)

Sergio Ferrara is professor emeritus at CERN and UCLA and emeritus scientist at Laboratori Nazionali di Frascati, INFN.
His main research interests are in theories of gravitation and unification of fundamental interactions through the principle of symmetry. He was a pioneer of the "Conformal Boostrap" with R. Gatto and A.F. Grillo in 1973 and of "Supersymmetric Yang-Mills Theories" with B. Zumino in 1974. In 1976 with D. Freedman and P. Van Nieuwenhuizen he discovered *Supergravity,* which generalizes Einstein's theory of general relativity by incorporating the idea of a "supersymmetry" between elementary particles.
In 1995 he formulated the Attractor Mechanism for extremal black holes with R. Kallosh and A. Strominger.
Before the 2019 Special Breakthrough Prize in Fundamental Physics he has received numerous recognitions, including the 1993 Dirac Medal and Prize from ICTP Trieste, the 2005 Enrico Fermi Prize of the Italian Physical Society, the 2006 Dannie Heineman Prize for Mathematical Physics.