

# PHYSIKALISCHES KOLLOQUIUM

AM 9. DEZEMBER 2013 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



Viktor Hess in 1912 prior to one of his balloon flights

## **ASTROPARTICLE PHYSICS AND THE CENTURY-OLD QUEST FOR THE SOURCES OF THE COSMIC RAYS**

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The discovery of cosmic rays by Victor Hess in 1912 marked the beginning of a new research field called astroparticle physics. This very diverse and dynamic field is situated at the interface of particle and astrophysics and uses detection techniques developed in particle physics to answer astrophysical questions. One of these central questions is the yet unresolved mystery of the sources of the cosmic rays which have to accelerate particles up to 10 Million times the LHC beam energy but elude identification so far. After a brief excursion into history, the talk discusses the different cosmic messengers used in the hunt for the sources of the cosmic rays and presents the various instrument types involved to detect these messengers. The current status of the observations and their astrophysical interpretations are discussed. The talk will conclude with a brief overview over other topical questions in astro- and particle physics which are covered by these very versatile instruments.