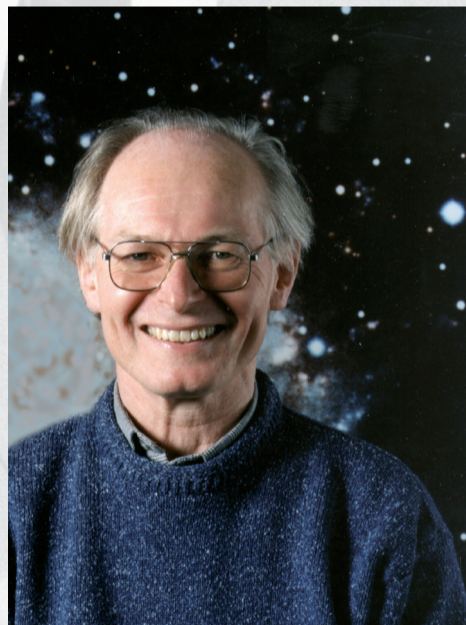


# JENTSCHKE LECTURE.

DESY Lecture in memory of Willibald Jentschke

## “From the Ionisation of Air to beyond the LHC” 100 years of Cosmic Rays

Prof. Dr. Alan Watson  
School of Physics and Astronomy  
University of Leeds, UK



**31 October 2012**  
**17:00 h, DESY Auditorium**  
**Notkestraße 85 | 22607 Hamburg | Germany**

At 15:30 h, prior to the Jentschke Lecture two special ceremonies to honor young researchers will take place: The Association of the Friends and Sponsors of DESY (VFFD) will award outstanding PhDs who have recently completed their thesis and in the framework of the PIER Helmholtz Graduate School the first PhD scholarships funded by the Joachim Herz Stiftung and the Helmholtz Association will be awarded.

Cosmic rays were discovered in 1912 as a result of the efforts by some of the most distinguished scientists of that era to explain the discharge of ionisation detectors. The study of cosmic rays has impacted on many disciplines, including astrophysics, particle physics, carbon dating and radio astronomy and thus has had scientific and societal impact. I will describe some of the early work that led, inter alia, to the discovery of the positron, the muon and the first strange particles and thus to the birth of particle physics. In 1938 it was found that showers of particles that reach the ground simultaneously are produced by primary cosmic rays of  $\sim 10^{15}$  eV, about  $10^5$  times more energetic than any particles that had then been contemplated. The role of German scientists in the discovery of the air-shower phenomenon has only recently been recognised. I will discuss how study of these showers has led to the discovery of cosmic rays of energies as great as  $3 \times 10^{20}$  eV, challenging our understanding of where and how they are created. Data from the Pierre Auger Observatory, the largest cosmic-ray detector ever built, is now being used for astrophysical studies and to give glimpses of some hadronic physics at centre-of-mass energies over 4 times greater than are accessible at the LHC.

**More Information: [www.desy.de/jentschke](http://www.desy.de/jentschke)**

The lecture is supported by the Association of the Friends and Sponsors of DESY:  
<http://vffd.desy.de>

Accelerators | Photon Science | Particle Physics

Deutsches Elektronen-Synchrotron  
A Research Centre of the Helmholtz Association

