FAKULTÄT für PHYSIK
LUDWIG-MAXIMILIANS-UNIVERSITÄT
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT
TECHNISCHE UNIVERSITÄT MÜNCHEN
MÜNCHEN/GARCHING

MLL-KOLLOQUIUM

Donnerstag, 26.10.2017, 16^{15} Uhr

Hörsaal der LMU in Garching, Am Coulombwall 1
Treffen zum gemeinsamen Kaffee 16 Uhr

PD Dr. Robert Lahmann

(Erlangen Center for Astroparticle Physics (ECAP), Univ. Erlangen)

Neutrinos as cosmic messengers: Why and how to detect them

Neutrinos are electrically neutral and interact only weakly with ordinary matter. Cnsequently they propagate through the Universe without absorption or deflection, pointing back to their origin. These properties make neutrinos unique messenger particles of a wide range of cosmic phenomena, such as supernovae, gamma ray bursts or active galactic nuclei. To search for the neutrinos expected to originate from such phenomena, a whole new class of detection devices has been conceived and built: large volume Cherenkov neutrino telescopes, located in the ice of Antarctica and deep in the Mediterranean Sea and in Lake Baikal.
In this presentation, the production mechanisms of neutrinos and the underlying astrophysical processes will be discussed. Operating neutrino telescopes and recent results will be presented. Plans for the future and alternative detection methods, such as the acoustic detection of the energy deposition of neutrinos in water, will be expounded.

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