

Prof. Dr. Hans Jockers
Institut für Physik
jockers@uni-mainz.de

Prof. Dr. Concettina Sfienti
Institut für Kernphysik
sfienti@uni-mainz.de

JOHANNES GUTENBERG
UNIVERSITÄT MAINZ



Physikalisches Kolloquium

Dec. 15, 2020 at 4:15 p.m.
None

Baha Balantekin
University of Wisconsin, Madison, USA

Entanglement in collective neutrino oscillations

Earlier theoretical work on neutrino propagation in dense media, in particular the Mikheyev-Smirnov-Wolfenstein effect describing phase changes in neutrino wave functions resulting from their interaction with the background particles, provided an explanation of the measured distortions of the solar neutrinos. A more complex effect takes place in the denser media inside supernovae and neutron-star mergers, where neutrinos interact not only with the background particles but also among themselves. After reviewing key roles neutrinos play in such environments, this many-neutrino problem and resulting collective neutrino oscillations will be discussed. Implications of correlations between neutrinos in this many-neutrino system for nucleosynthesis and terrestrial detection of supernova neutrinos will be explored.

Contact:
Caroline Hoffmann
Sekretariat Prof. Dr. Hans Jockers
Institut für Physik
choffman@uni-mainz.de

Sibylle Wittek
Sekretariat Prof. Dr. Concettina
Sfienti
Institut für Kernphysik
swittek@uni-mainz.de

