

## **High energy neutrinos from hidden sources**

M. Kachelrieß<sup>a</sup> and R. Tomàs<sup>b</sup>

*(a) Max-Planck-Institut für Physik (Werner-Heisenberg-Institut), Föhringer Ring 6, D–80805 München, Germany*

*(b) IFIC - Instituto de Fisica Corpuscular Apartado de Correos 22085 E–46071 Valencia, Spain*

Presenter: R. Tomàs (ricard@mppmu.mpg.de), ger-tomas-R-abs1-og25-oral

We calculate the flux of high energy neutrinos produced in astrophysical, optically thick sources. We take into account the scattering of secondaries on background photons as well as the direct production of neutrinos in decays of charm mesons. Above the critical energy  $E_{cr}$ , at which the decay length of charged pions equals its interaction length on target photons, the neutrino flux depends strongly on charm production. If multiple scattering of nucleons becomes important, also the neutrino spectra from pion and muon decay are strongly modified with respect to transparent sources.