Search for a diffuse emission of neutrinos from Local Bubbles with the ANTARES telescope

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All-flavour neutrino detector

Searches for cosmic sources of neutrinos (point-like, diffuse, transient)

Best sensitivity for emissions below 100 TeV

Best sensitivity for galactic emission scenarios

Best visibility over the southern sky

10 Mton under-sea (2.5km depth) Cherenkov \( \nu \)-detector

Expected flux as from ArXiv:1712.03153
Event selection for upward-going events (Earth used as a shield against CR muons)

**Track channel** (passing through muons from CC neutrino interactions) → Good rejection of CR muons
Limited energy resolution

**Shower channel** (NC and CC interactions close to the detector) → Limited volume (and statistics)
Optimal energy resolution

Model Rejection Factor optimisation for event selection
Energy-related cut to select cosmic vs atmospheric neutrinos after CR muon rejection
“Flat” cosmic background considered as well in the optimisation procedure

2 emission scenarios:
**Full circle** – 60° radius, centred at gal. coordinates (17.5, -30)
**10°-thick ring** with same radius and centre
Assuming all the Loop1 emission comes only from these part of the sky