



Multi-Messenger Astronomy

TOO alert generation and distribution
follow-ups, brokers, VO formats
SNEWS 2.0

Time synchronization/absolute time

KM3NeT AORCA (ms), P2O (ns)
GPS, White Rabbit, WR via internet
portable atomic clocks

Machine learning/AI techniques for AP

triggering
event reconstruction, event selection,
anomaly detection, supervised, unsupervised

Corsika event generation

CR showers, include neutrinos (veto)
GPUs
GRID/Cloud/DIRAC

Open data

data format, interoperability, IRFs,
archiving, common AP portal

Photodetection R&D

improved timing, QE, area, dark count, cost

Sustainability

minimise carbon footprint of RIs and their computing
solar power, wind power, batteries, ...

Outreach/Art-science

synergies between the AP RIs

Distributed acoustic sensing

fibre optic telecommunication cables:
seismology/geoscience, bioacoustics, defense
acoustic pollution
Acoustic detection UHE neutrinos in sea

KM3NeT Specific

cheaper wetmateable connectors, anti-biofouling,
acoustic positioning technology/absolute pointing,
wavelength shifter
measure in-situ light scattering
new sensors: radioactivity, spectrometer, CO₂, DNA, ...
access to user ports, connection to EMSO
neutrino tomography with geoscience

Many of these topics inside the Apogeia proposal