

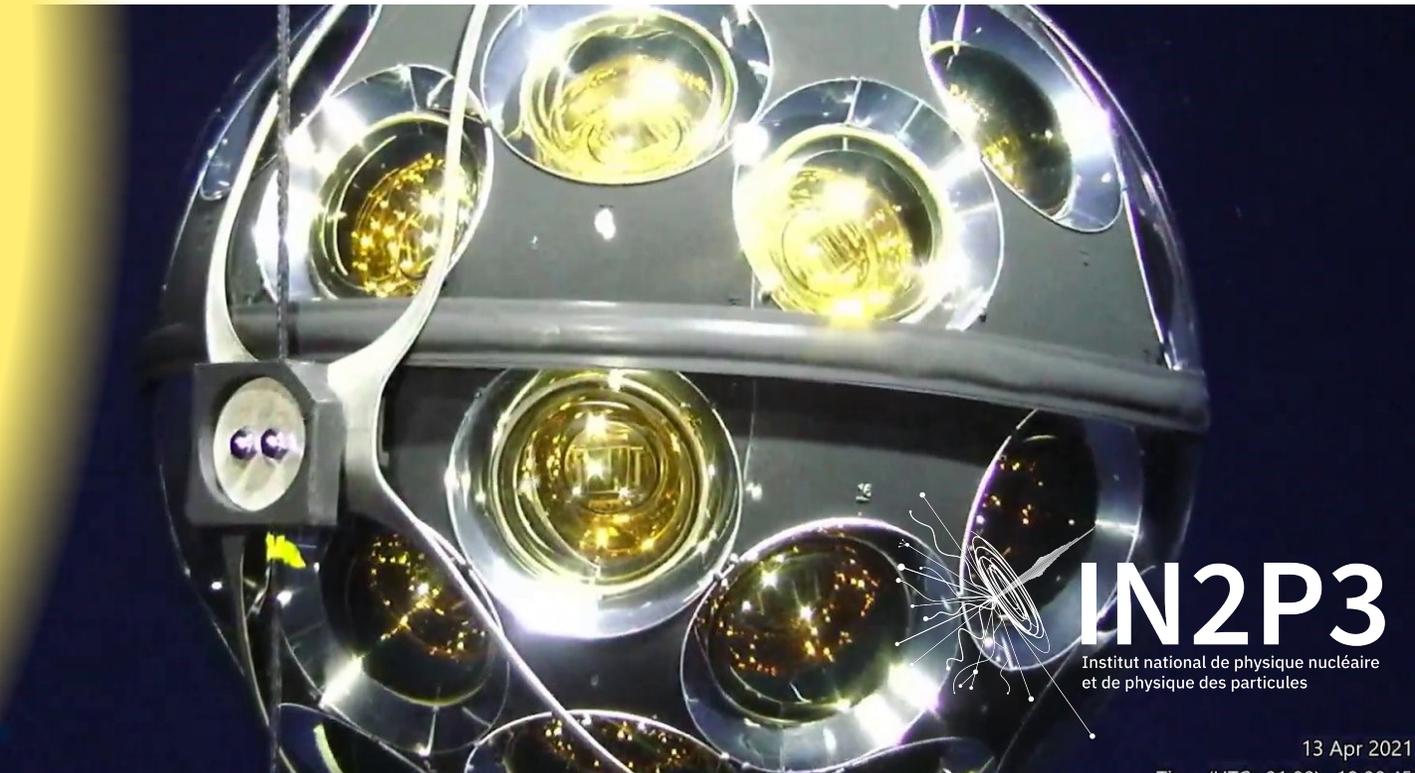
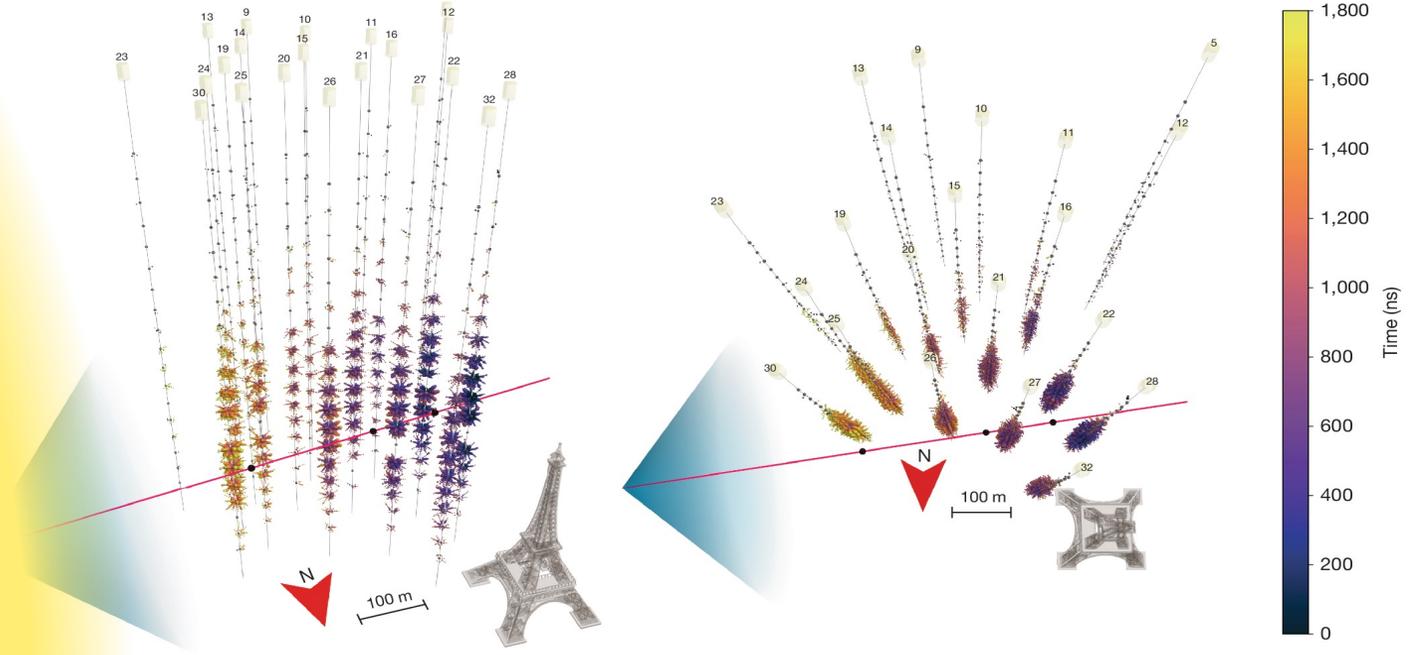


Conseil scientifique  
institut

KM3NeT – 2 mars 2026

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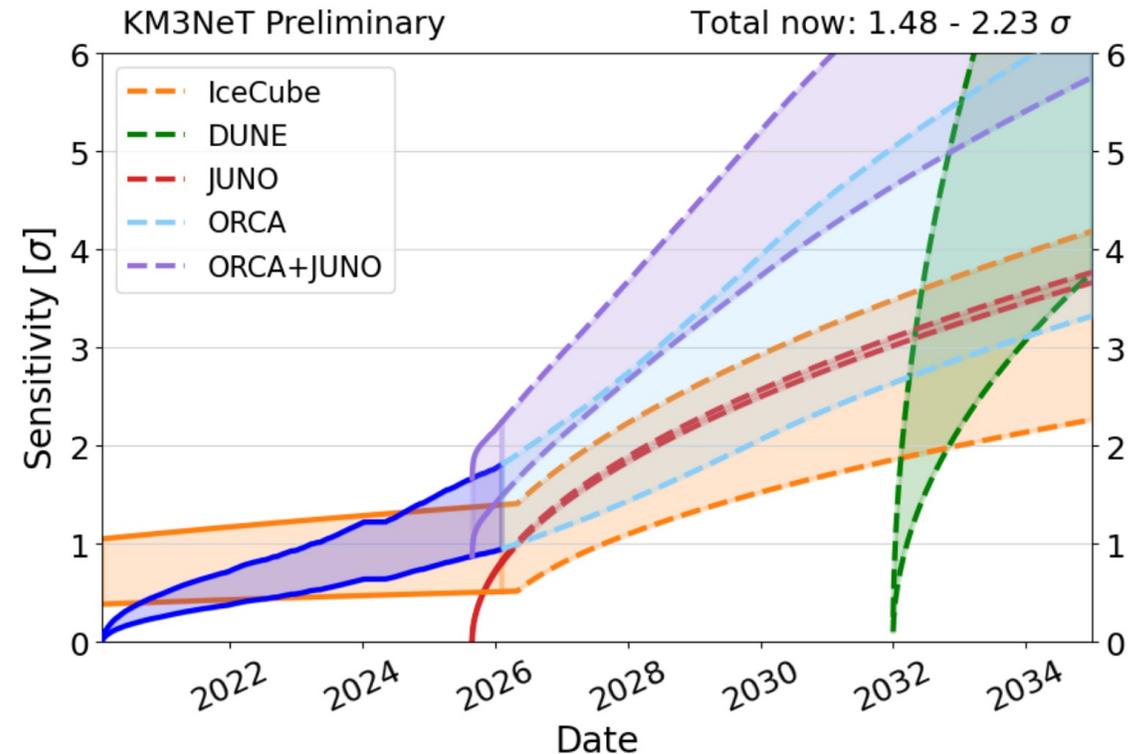
Scientific Director « Astroparticles & cosmology »



**IN2P3**  
Institut national de physique nucléaire  
et de physique des particules

# KM3NeT : a tool for particle physics and astroparticle

- Follow-up of a long history in our institute with ANTARES detector
- 2 sites under construction : one close to Toulon in France (ORCA) and one close to Sicily (ARCA)
- Different physic subjects at reach in these two detectors
  - ORCA more focus on particle physics studies
  - ARCA more focus on astroparticle physics
- **Detector**
  - 94/108 lines are financed in ORCA – 33 under water
  - 150/230 lines are financed in ARCA – 51 under water
- **Neutrino mass ordering is one of the key question – strong international competition on the subjects in the next 10 years**



# Points to be addressed here

## ORCA:

- **Measurement of neutrino mass hierarchy: how do we compare with the current schedule of other experiments, and can we move faster?**
- **What is the physics program beyond the mass hierarchy, whether in particle physics or multi-messenger astrophysics (and the associated schedule)?**
- **What links need to be established with other experiments (in particular JUNO) in order to carry out the various measurements? What is the status of discussions with these various collaborations?**
- **What is the impact of the number of lines on these different program areas?**

## ORCA-ARCA:

- **What are the plan to combine ORCA-ARCA detectors, whether for particle physics questions (in mass hierarchy and beyond) or for multi-messenger aspects in astrophysics?**