REINFORCE

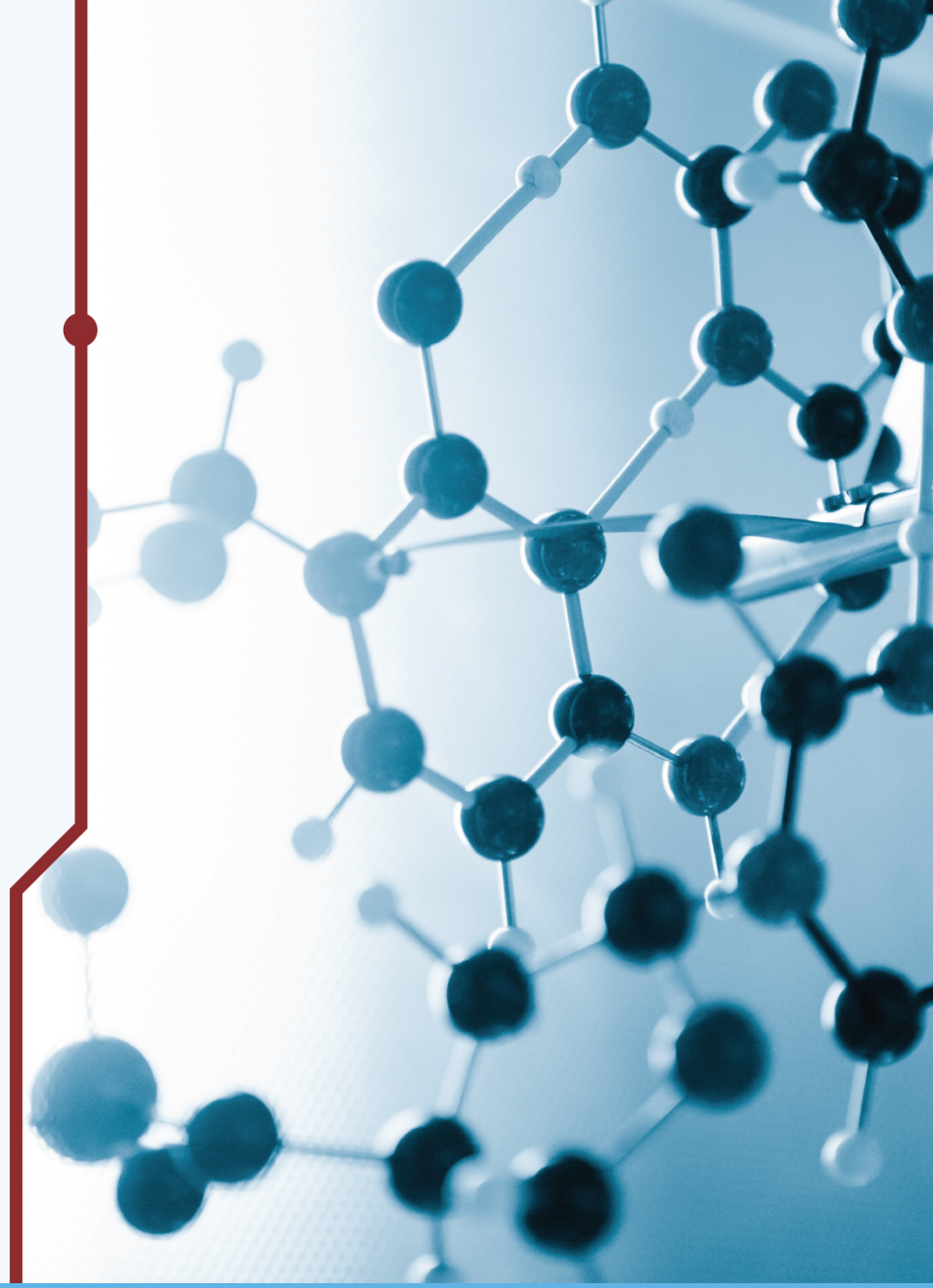
REsearch INfrastructures FOR Citizens in Europe

Neutrinos and KM3NeT

WEBINAR

February 26, 2021, 15:00 CET

Gwenhaël de Wasseige



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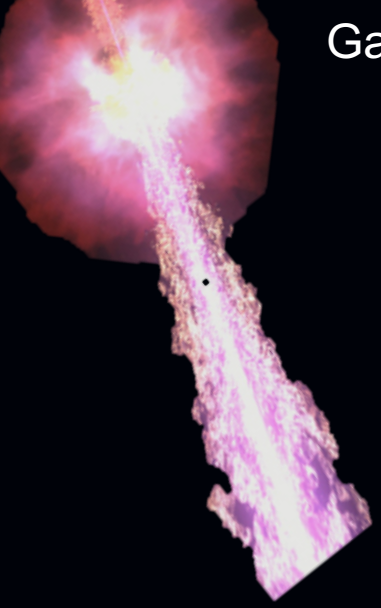
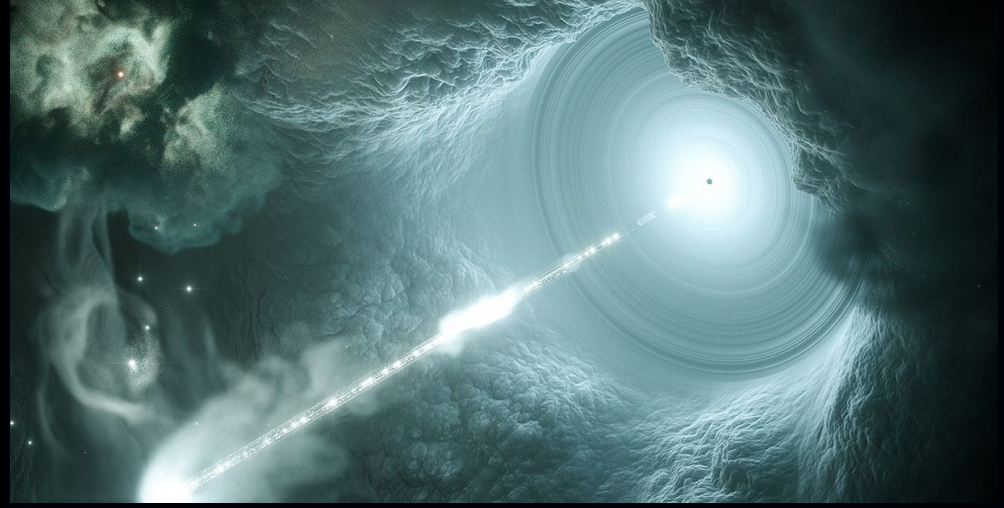
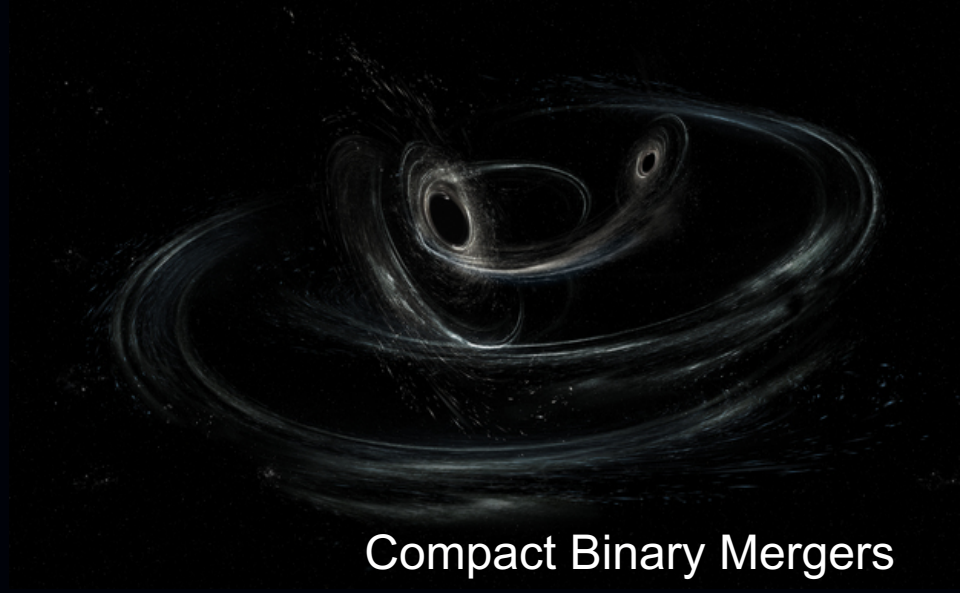


Gamma Ray Bursts

Core Collapse Supernovae

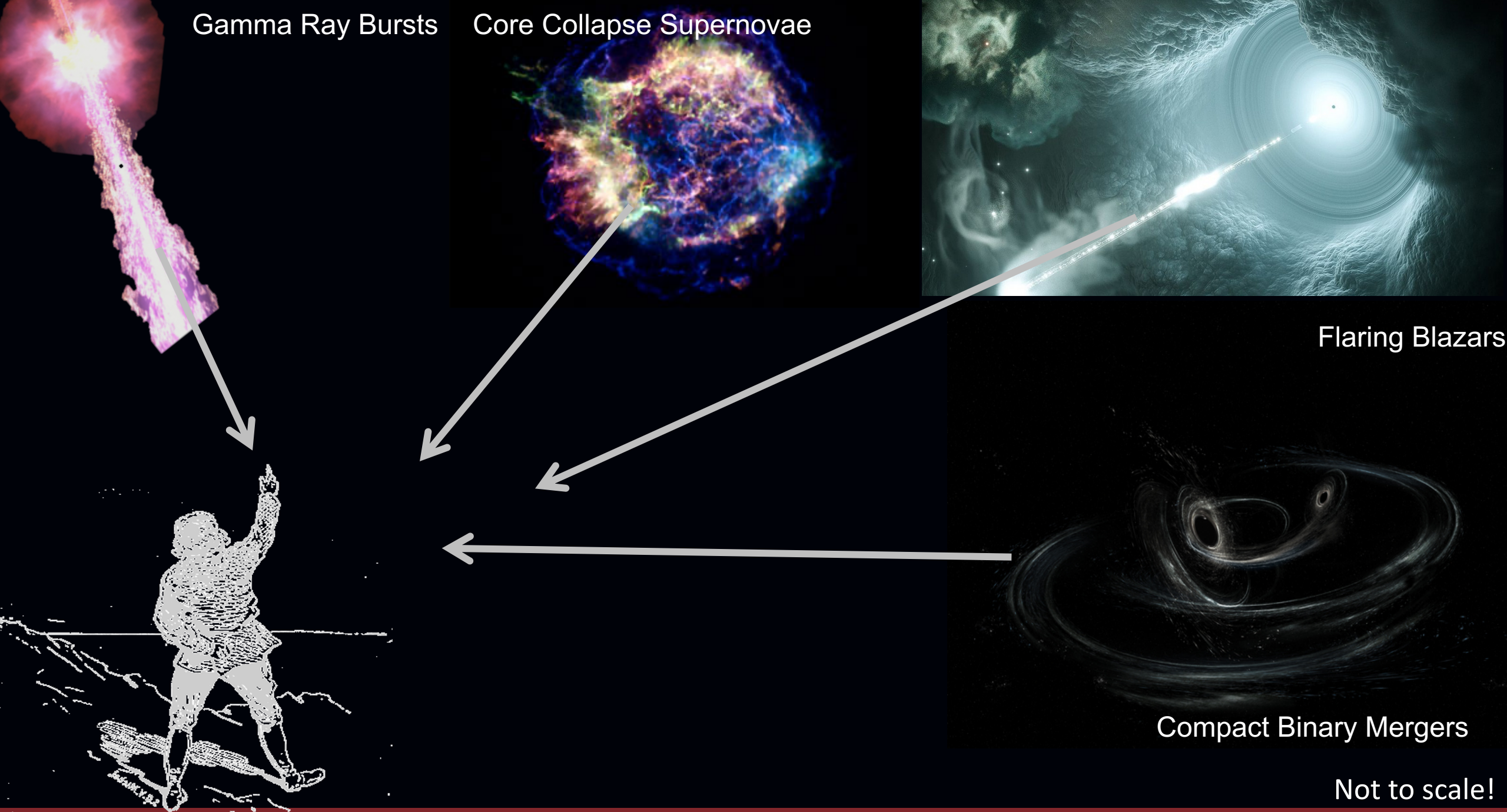


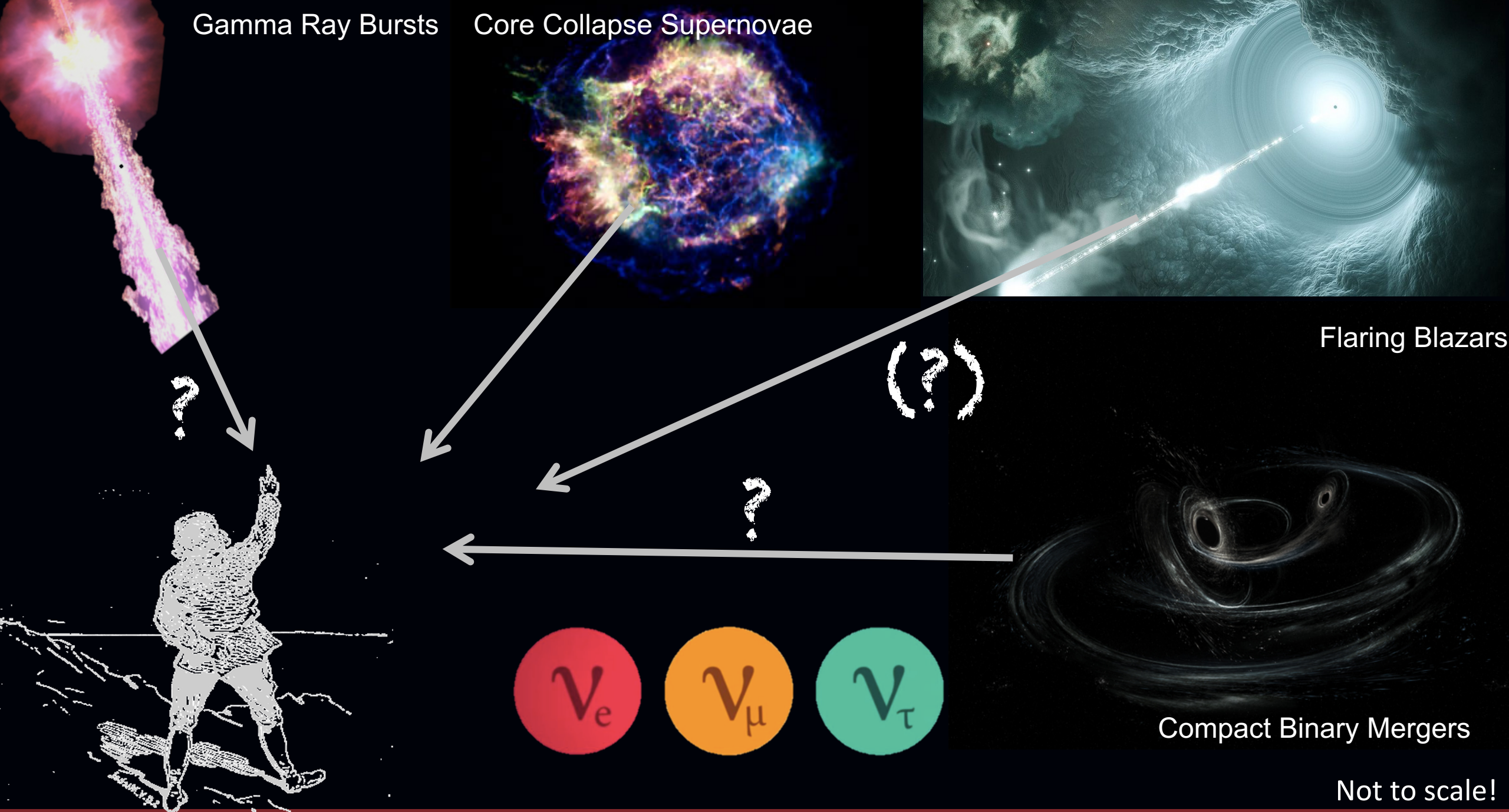
Flaring Blazars



Compact Binary Mergers

Not to scale!


Gamma Ray Bursts
Core Collapse Supernovae
Flaring Blazars
Compact Binary Mergers
Not to scale!


Gamma Ray Bursts
Core Collapse Supernovae
Flaring Blazars
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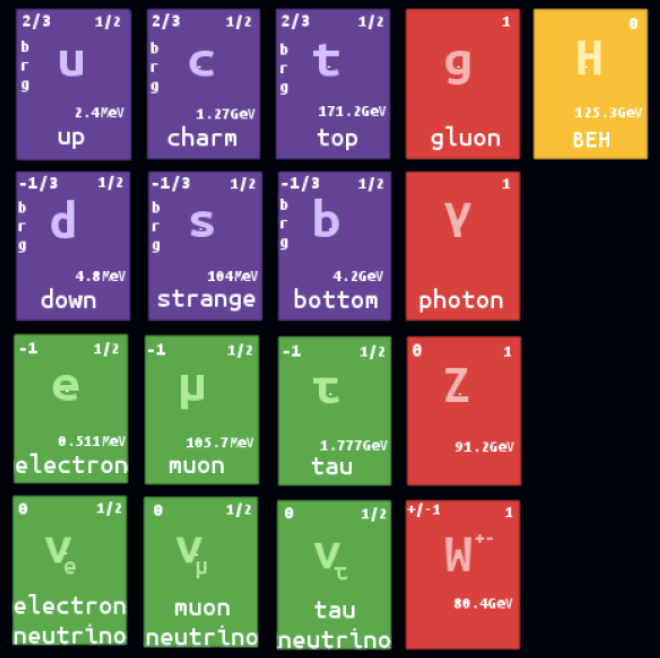
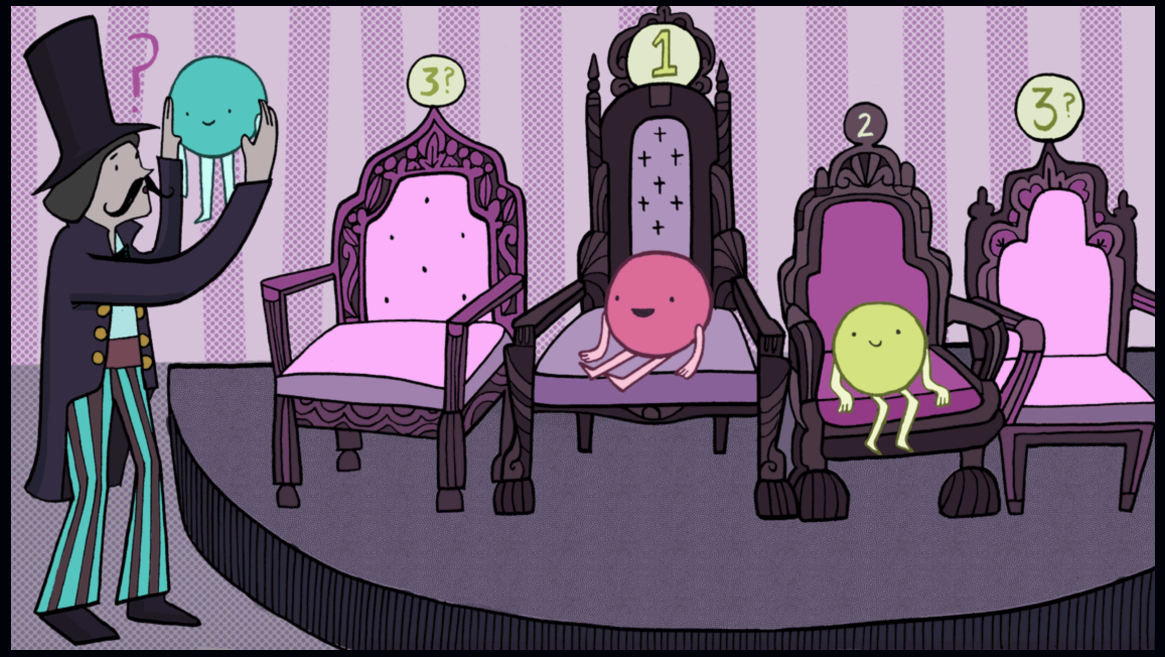
Compact Binary Mergers
Not to scale!

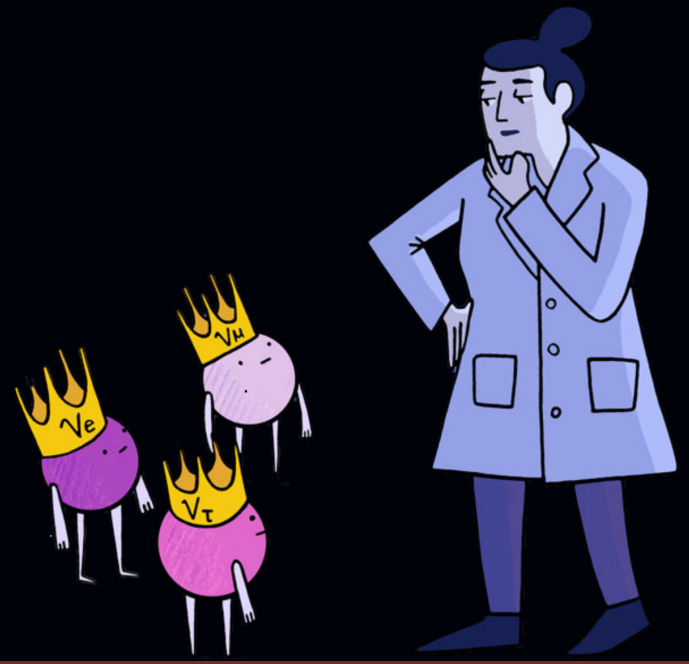


Standard Model
of
Particle Physics



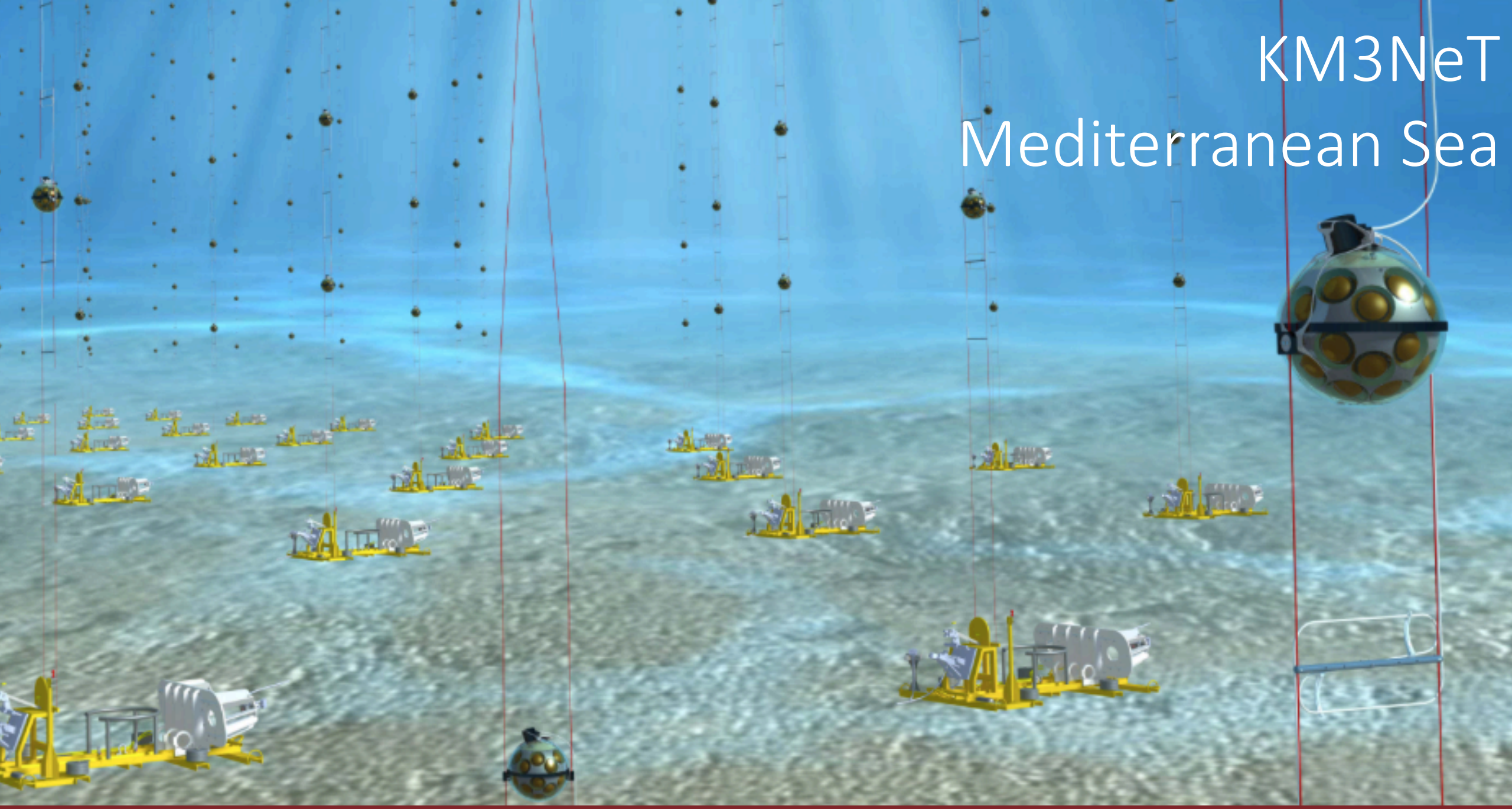
Neutrinos are massive!

Neutrinos oscillate!

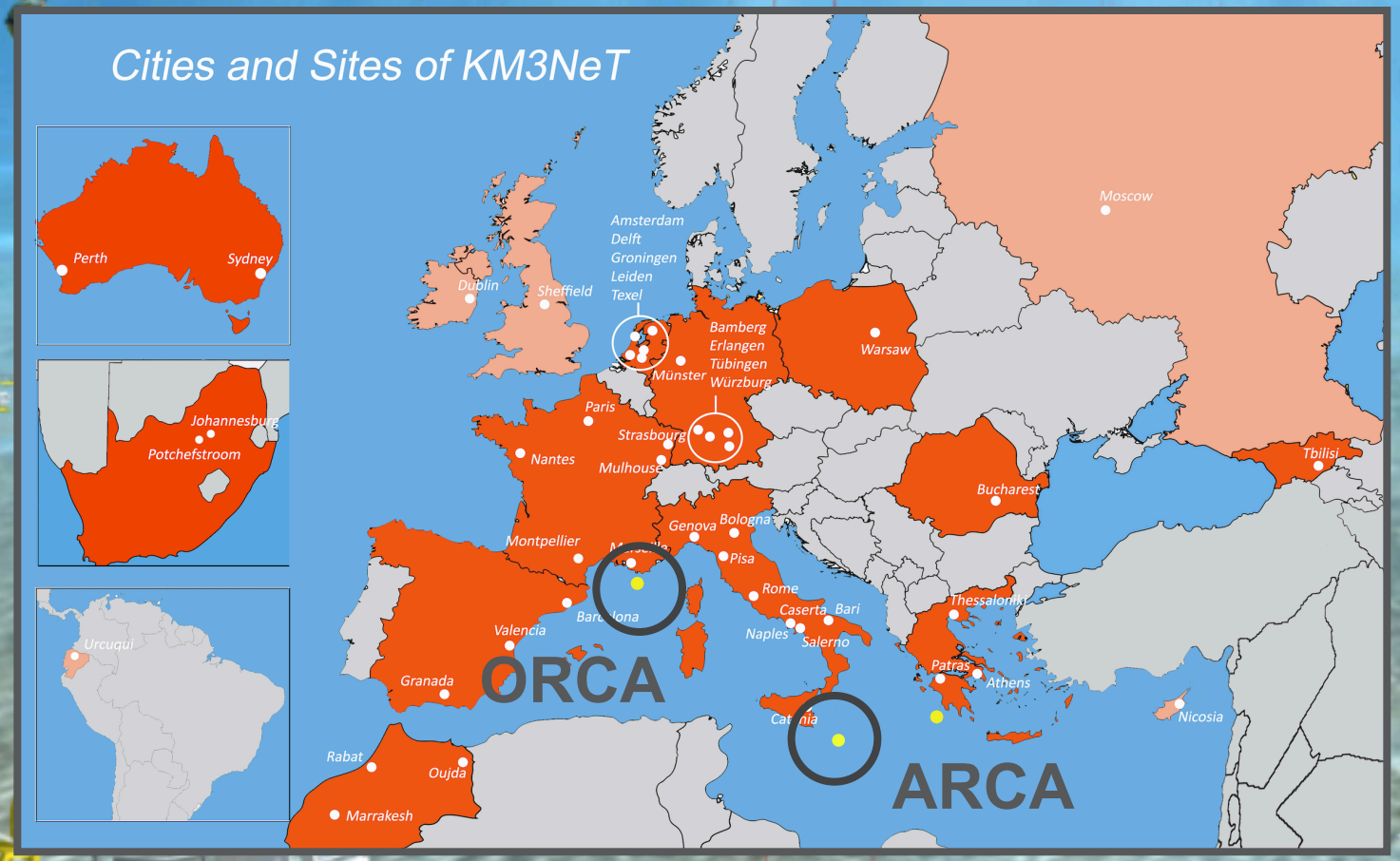


Symmetry magazine

KM3NeT
Mediterranean Sea

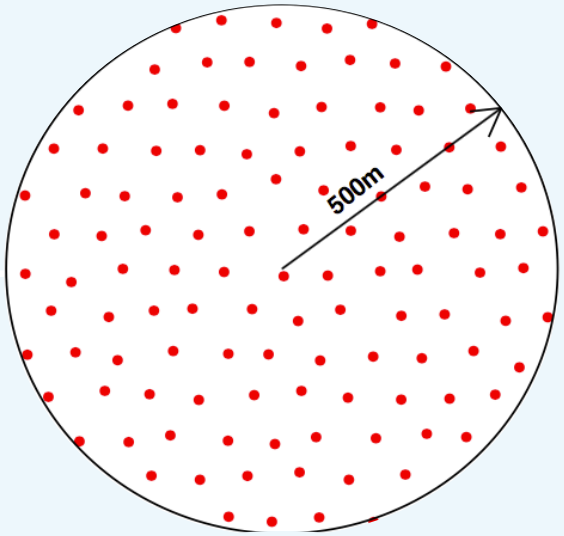


KM3NeT Mediterranean Sea

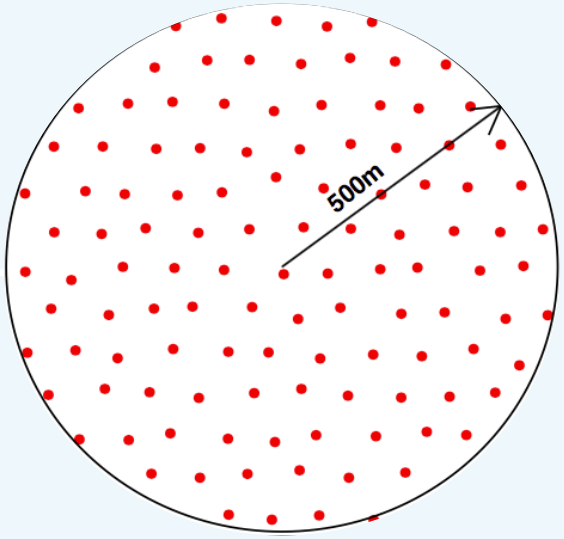


31 PMTs

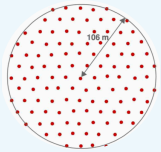
KM3NeT



Astroparticle Research with Cosmics in the Abyss



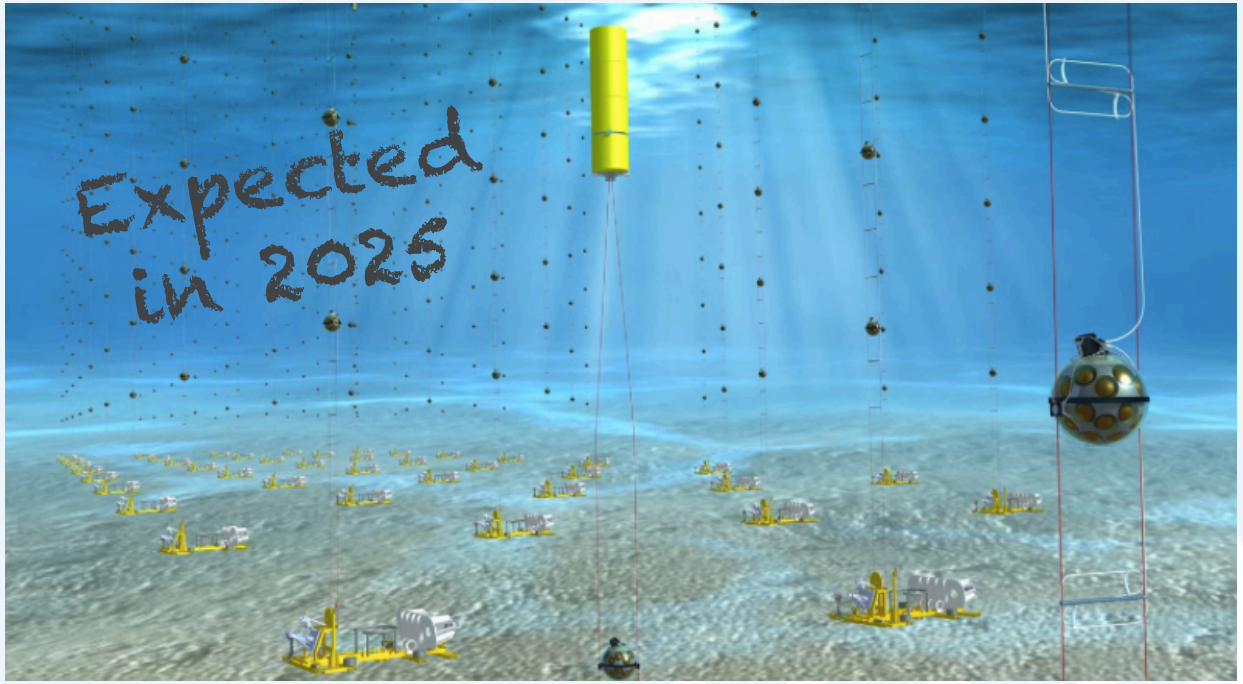
Depth: 3500 m



Depth: 2450 m

Oscillation Research with Cosmics in the Abyss

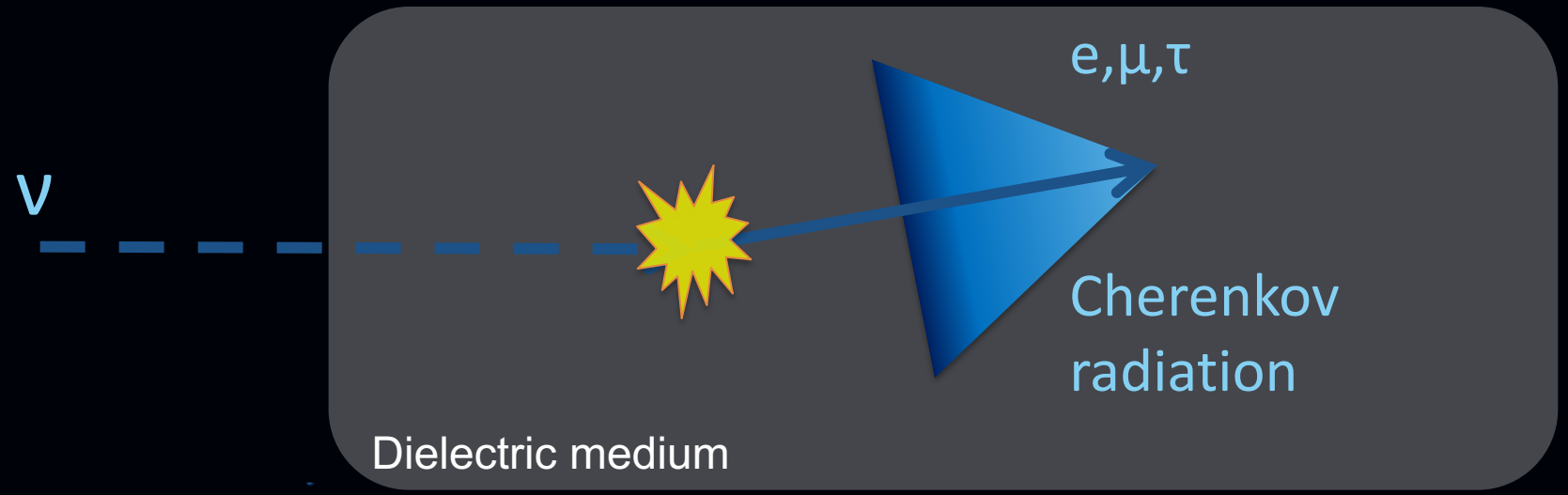
2 ARCA blocks
+ 1 ORCA block

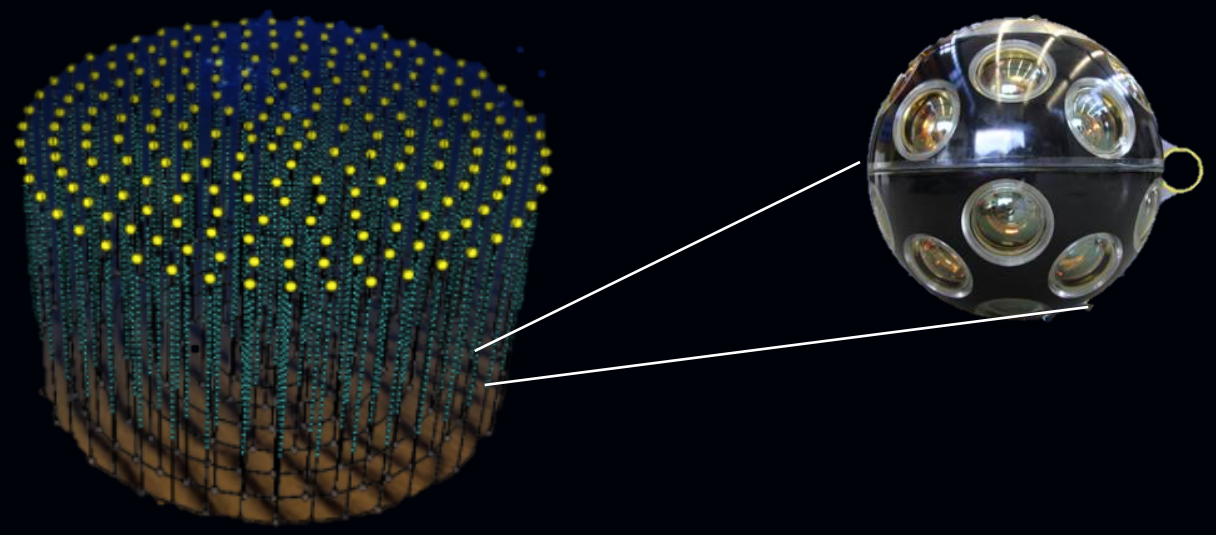


- 3 x 115 Detector Units
  InterDU spacing: 20 m or 90 m
- 18 DOMs
  Interdom spacing: 9 m or 36 m

Currently 1 ARCA + 6 ORCA DUs taking data

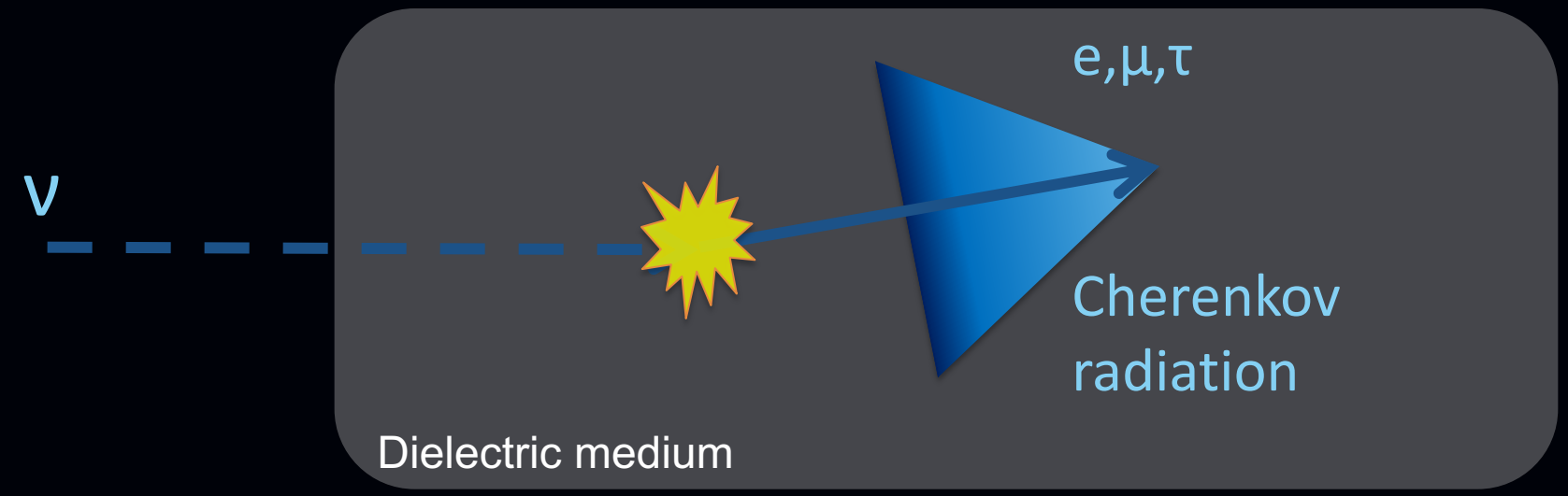
How to detect high-energy neutrinos?

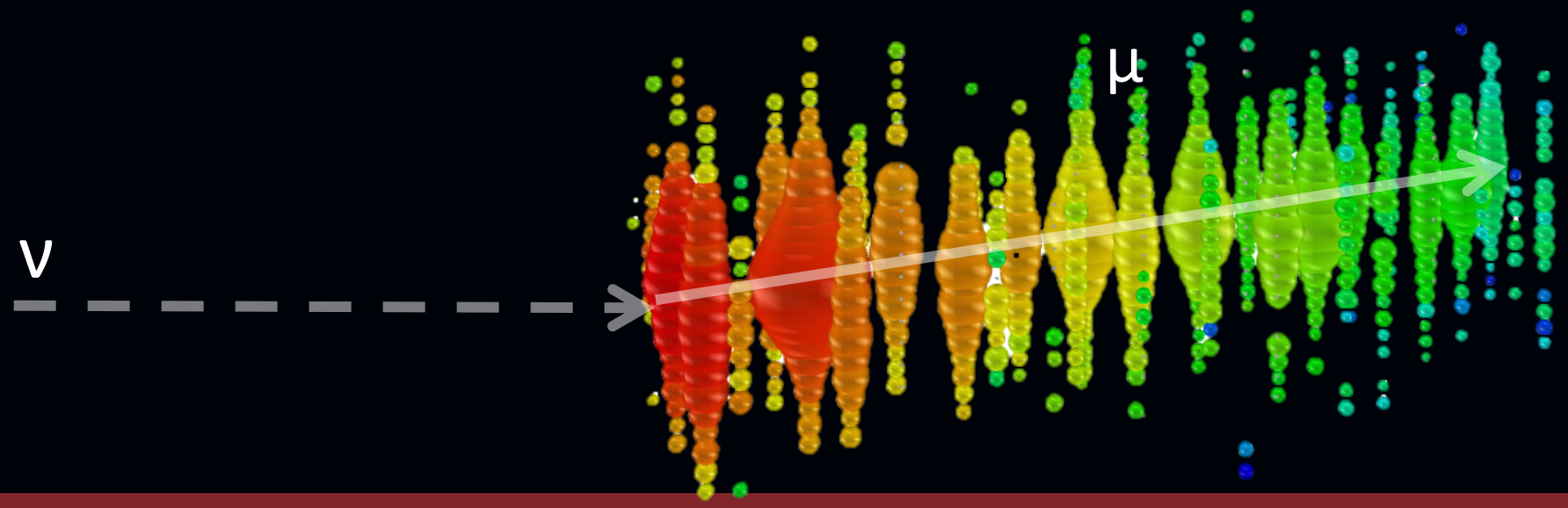


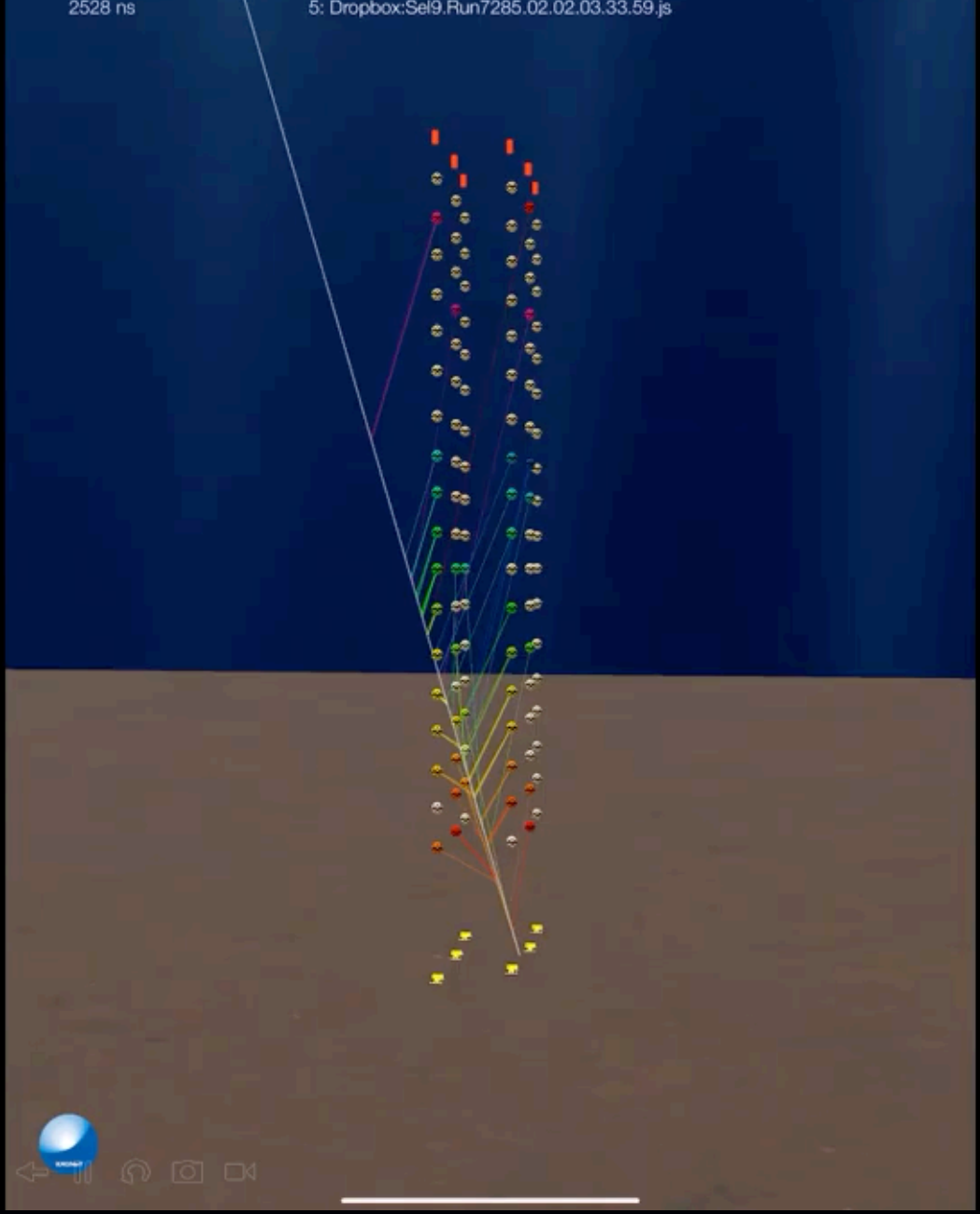


2070 sensors/block
1 block ORCA
+ 2 blocks ARCA

How to detect high-energy neutrinos?



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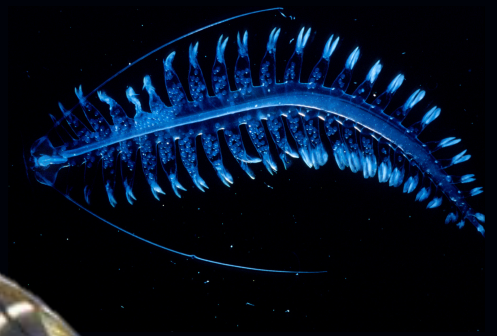
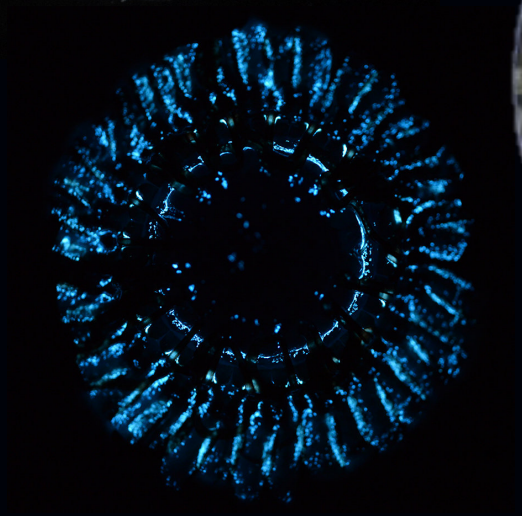
Help us understanding the *noise* from the Deep Sea

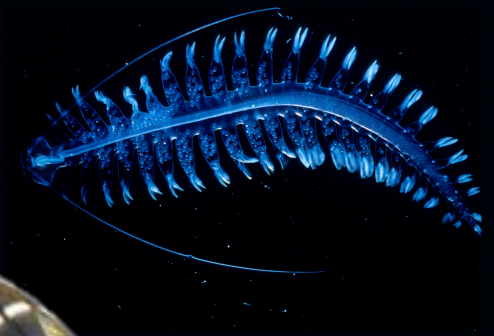


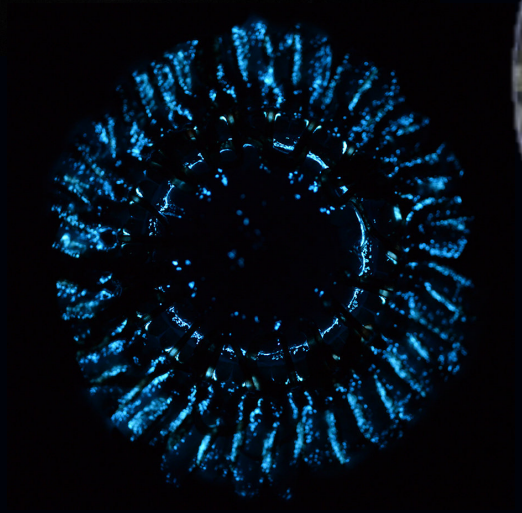


Steven Haddock/Monterey Bay Aquarium Research Institute

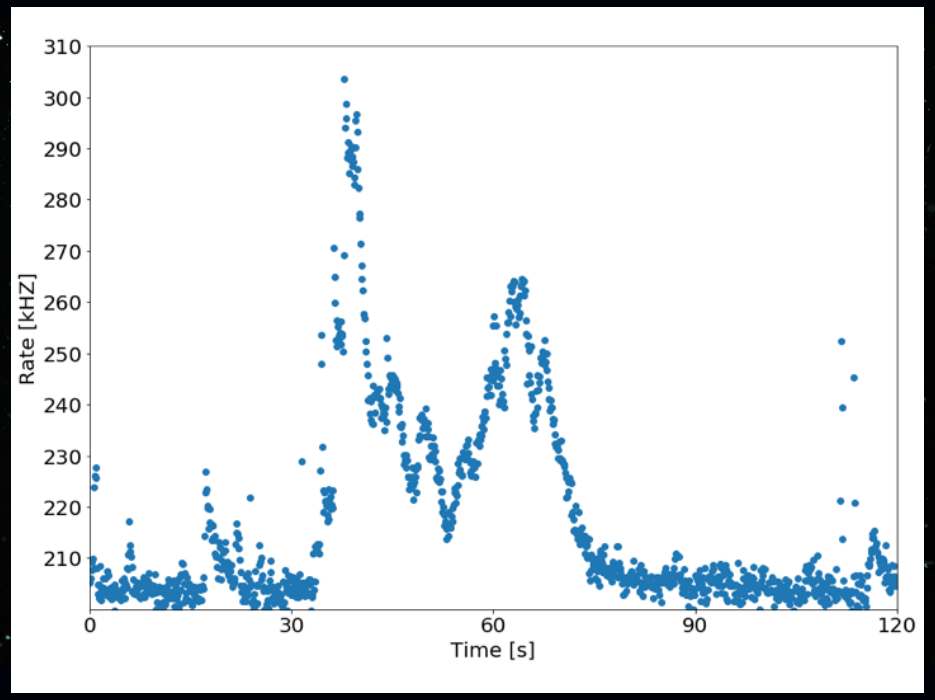
Not to scale!

Help us understanding the *noise* from the Deep Sea





Data recorded



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Not to scale!

Help us understanding the *noise* from the Deep Sea

Data recorded

Not to scale!

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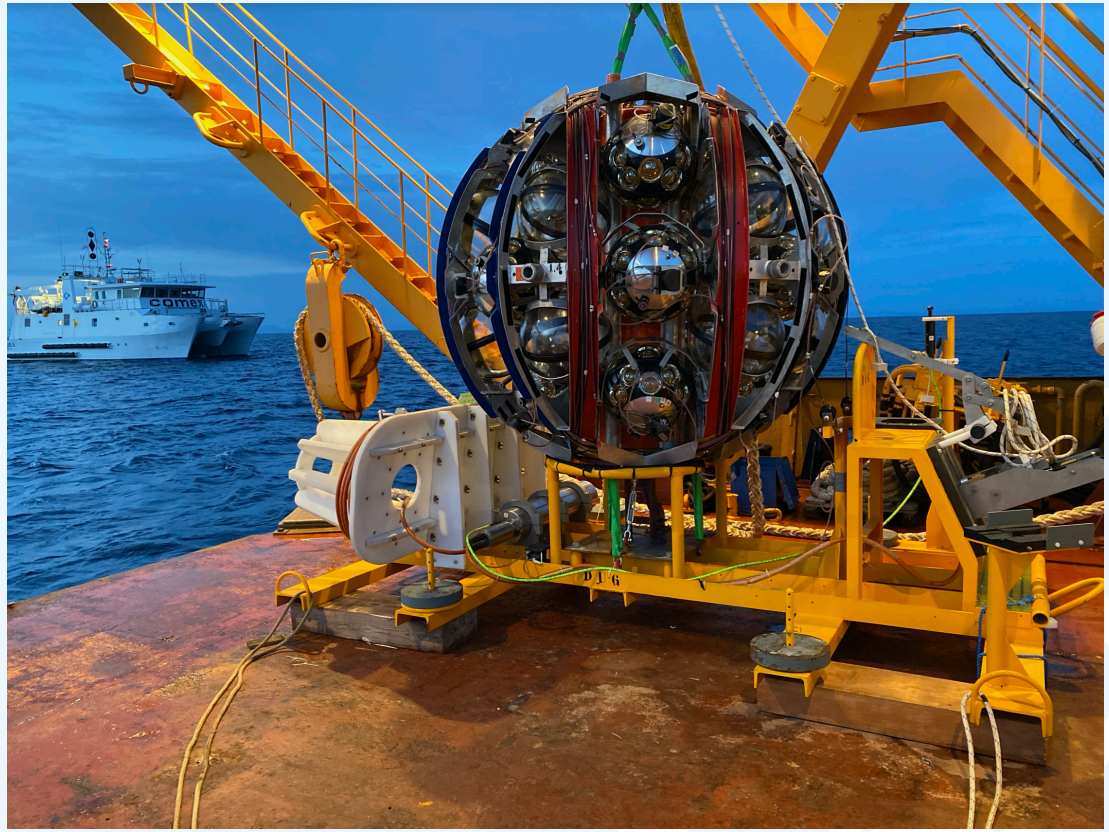

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