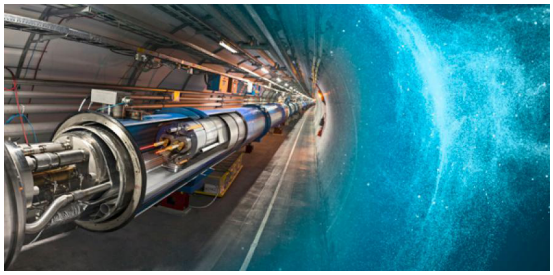

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Exploring the Impact of Magnetic field on Core-Collapse Supernova Neutrino Light Curves Detection.

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The time profile of neutrino emissions from core-collapse supernovae contains unique information about the dynamics of the collapsing stars and the behavior of particles in dense en- vironments. The observation of neutrinos from the SN1987A supernova, in the Large Magellanic Cloud, marked the beginning of neutrino astronomy. To date, no other supernova neutrino obser- vation has been made. It is therefore essential to investigate the impact of the supernova properties on the neutrino light curves expected in current and future experiments. In this contribution, we study the effect of the magnetic field on the neutrino observations. For certain massive supernovae, strong magnetic fields are expected to change the star's collapse rate, and thus modulate neutrino production. Here, we consider the impact of different magnetic field topologies on neutrino light curves which would be observed at the KM3NeT, DUNE, and DarkSide experiments. We iden- tify areas of complementarity between these three experiments and discuss how to combine their observations to allow to discriminate between different supernova models.

Primary authors: BENDAHMAN, Meriem (Faculty of Sciences, Mohammed V University, Rabat - Laboratoire Astroparticules et Cosmologie, Université de Paris, Paris); Dr EL HEDRI, Sonia (Laboratoire Astroparticules et Cosmologie, Universite´ de Paris, Paris); Dr BUGLI, Matteo (CEA Saclay, Department of Astrophysics); Dr KOUCHNER, Antoine (Laboratoire Astroparticules et Cosmologie, Universite´ de Paris, Paris); Dr TAYALATI, Yahya (Faculty of Sciences, Mohammed V University, Rabat)

Presenter: BENDAHMAN, Meriem (Faculty of Sciences, Mohammed V University, Rabat - Laboratoire Astroparticules et Cosmologie, Université de Paris, Paris)

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