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QCD axions at finite density. Vincenzo Fiorentino

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Providing an elegant solution to the strong CP problem, and representing a promising candidate for cold dark matter, the QCD axion is one of the best motivated light BSM particles. For this reason, the experimental effort in the search for the axion has increased drastically in recent times, with new experimental proposals like IAXO at DESY, and FLASH at the INFN. This makes it necessary to provide highly precise and reliable bounds on the axion parameter space. In this talk I will give an introduction to the supernova axion bound, focusing in particular on the role of finite density corrections, which are important in the supernova and have been neglected in the past. Additionally, I will describe how the so-called nucleophobic axion models, for which the supernova bound gets sizeably relaxed, survive finite density effects. Finally, I will provide some insight on more recent developments.

Classification de Session: Students presentations