

# Conceptual design of the Superconducting magnet for teh Madmax experiemnt

*Wednesday 20 June 2018 12:15 (5 minutes)*

Madmax (Magnetized Disc and Mirror Axion Experiment) is newly started project aiming to verify the existence of dark matter axions. The experiment takes advantage of the axions ability to generate a weak electric field when immersed in a static magnetic field. In order to operate with the required sensitivity a figure of merit of 100 Tm<sup>2</sup> in the experimental volume is necessary. This goal is achieved by taking advantage of superconductivity, which allows manufacturing magnets reaching fields in excess of 16 T. This contribution describes the results of a conceptual design of the Madmax superconducting magnet with particular focus on the optimization of the magnetic design aiming to achieve the figure of merit while using the commercially available and well-developed NbTi technology.

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**Session Classification:** Plenary short presentations