

# International MORA workshop (Matter's Origin from the RadioActivity of trapped and laser oriented ions)



**lundi 2 mai 2022 - jeudi 5 mai 2022**

**JYFL**

## **Scientific scope**

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The Matter's Origin from RadioActivity (MORA) experiment gathers experts of ion manipulation in traps and laser orientation methods for searches of New Physics (NP) in nuclear beta decay. These searches proceed via the precise measurement of the so-called triple D correlation, which is sensitive to Time reversal violation, and via the CPT theorem, to CP violation. As such, the parameter D measured in nuclear beta decay is a complementary probe to the electric dipole moment of the neutron. CP violation is expected to explain the matter – antimatter asymmetry observed in the Universe.

After three years of development at Caen in LPC Caen and GANIL, the MORA apparatus is now ready for on-line commissioning at JYFL. One of the main objectives is the proof-of-principle of an innovative in-trap polarization technique.

The sensitivity to New Physics (NP) of the precision measurement of D to an eventual  $10^{-5}$  level is being theoretically studied, with emphasis on the Leptoquark models.

This event is a follow-up of workshops held in Caen in 2019 and 2020, with the additional aim to discuss in a wider scope searches for CP violation, and tests of the Standard Model with low-energy experiments. We additionally aim to take this opportunity to give a status report of the commissioning beam times of MORA.