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## TUCAN developments toward first UCN production and nEDM experiment.

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The TUCAN (TRIUMF UltraCold Advanced Neutron) collaboration aims for the construction of the world strongest ultracold neutron (UCN) source with a production rate of  $1.6 \times 10^7$  neutrons per second. The TUCAN source is based on a UCN production volume of superfluid helium (He-II), held at 1 K, coupled to a proton-driven spallation target. I'll describe the functioning of the source and the results of the different phases of the experiment commissioning, including the steps leading to our first UCN production this summer. The primary goal of the source is to feed an nEDM (neutron Electric Dipole Moment) experiment. The nEDM experiment is projected to be capable of a precision of  $1 \times 10^{-27}$  ecm, competitive with other planned projects, and a factor of ten more precise than the present world's best. I'll present the recent magnetically shielded room construction and testing, progress towards efficient neutron transport, and magnetometry development.

## Keyword-1

neutron

## Keyword-2

electric dipole moment

## Keyword-3

cryostat

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