

Research interests Francesco Nuti

The University of Melbourne

26/11/2020

Dark Matter Centre 2020 Annual Workshop



THE UNIVERSITY OF
MELBOURNE





Introduction

Position

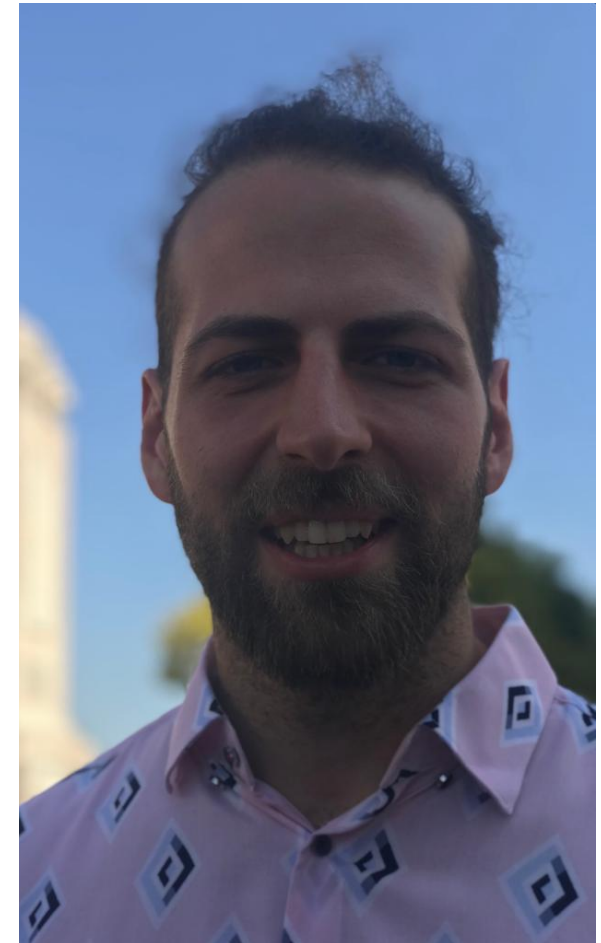
- Postdoc at the University of Melbourne since 2017

Contact

- francesco.nuti@unimelb.edu.au

Research Activity

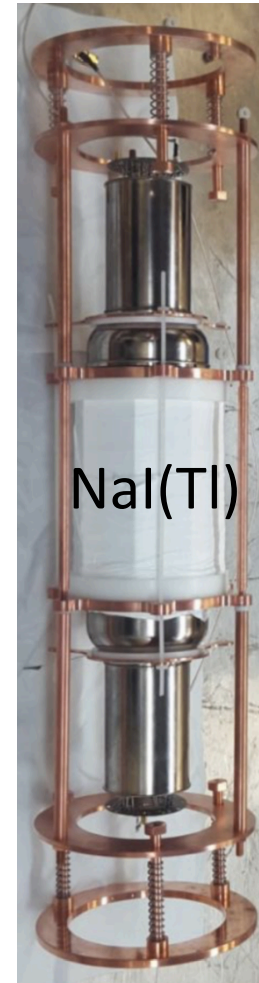
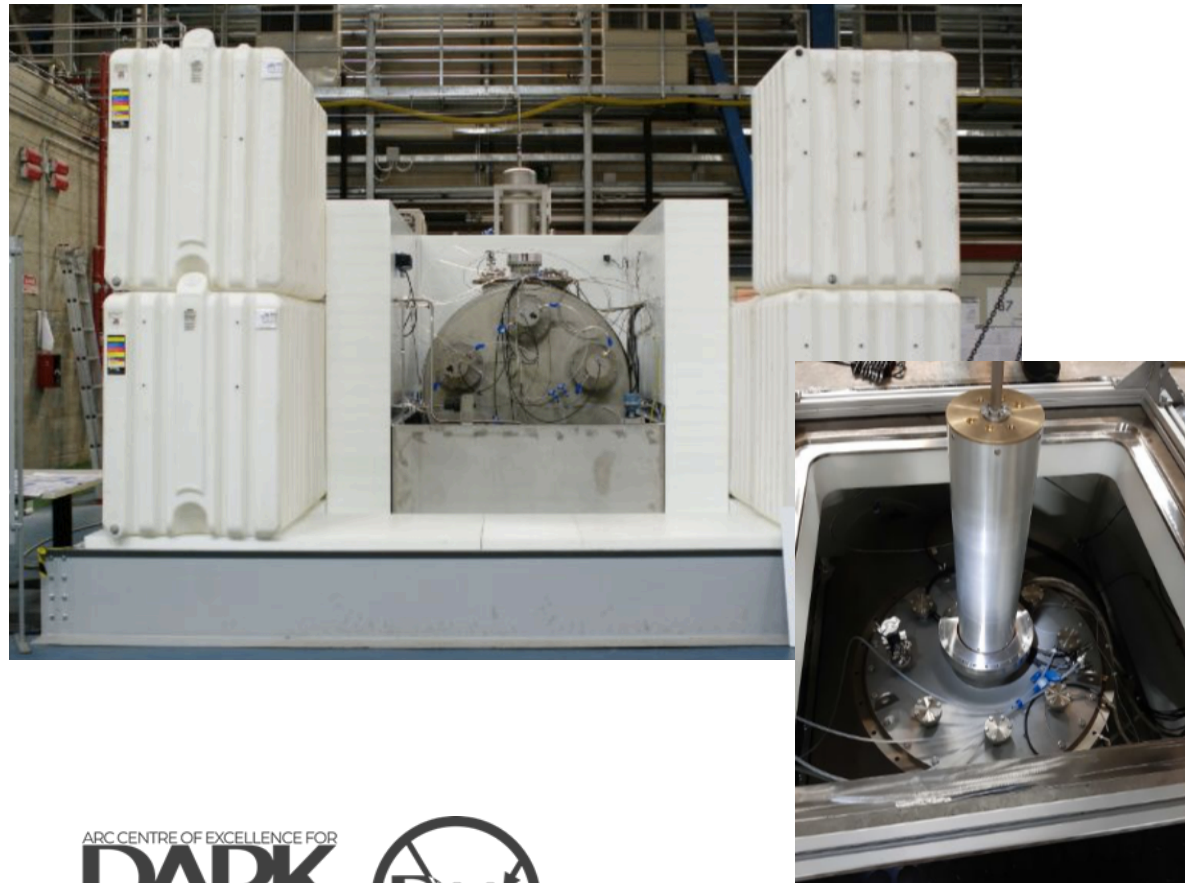
- Dark Matter detection with SABRE
- Radiation measurements for SUPL



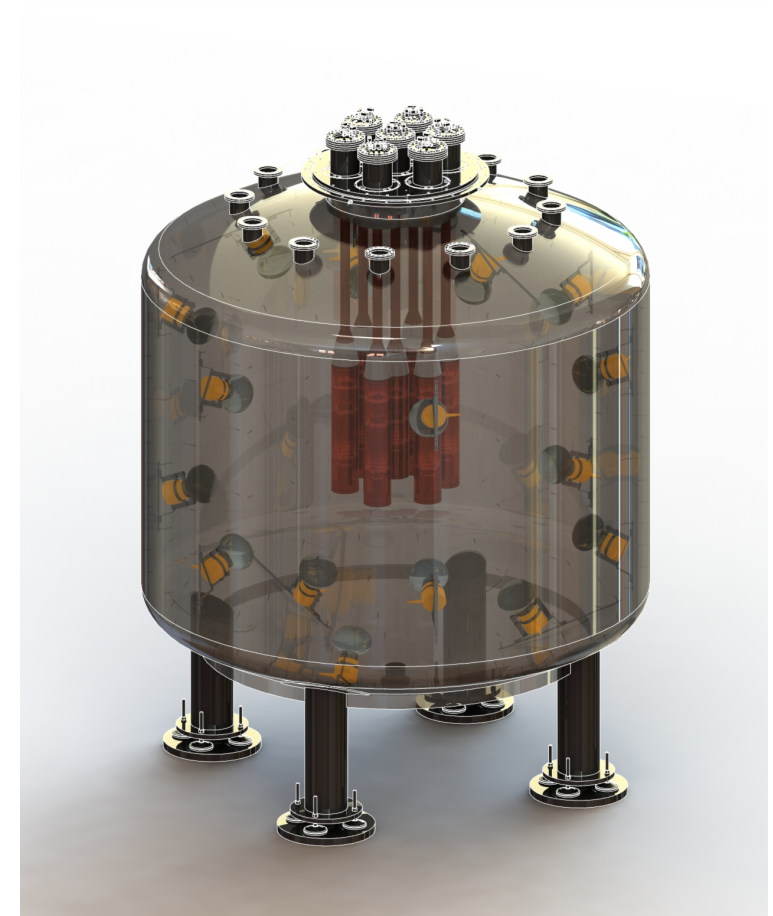


SABRE

Proof of Principle (PoP)

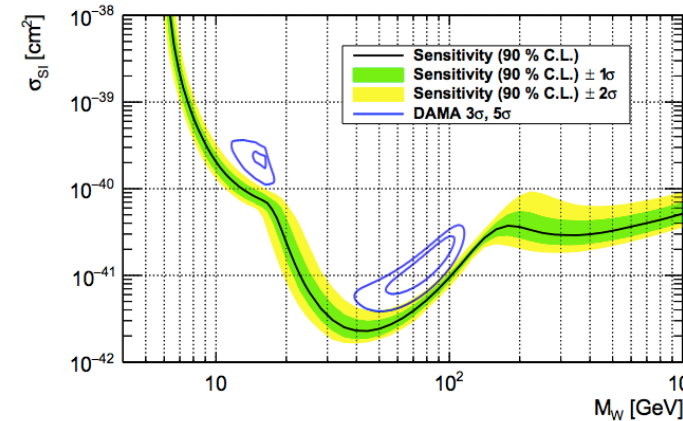
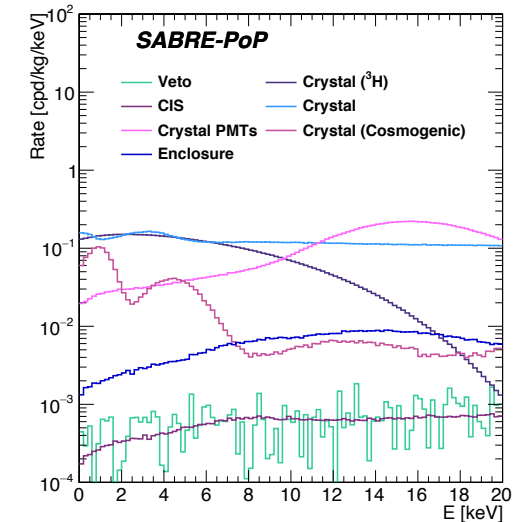
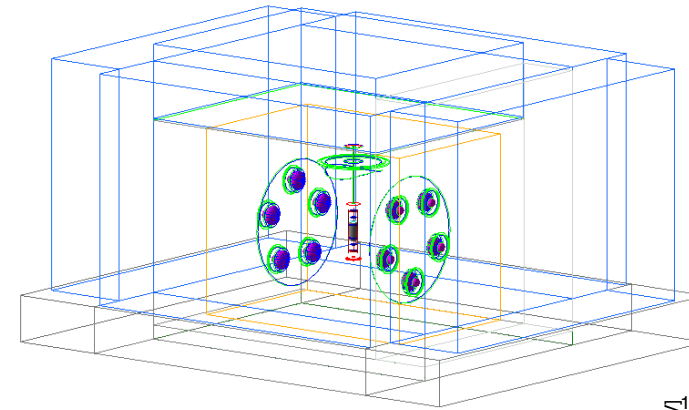


South



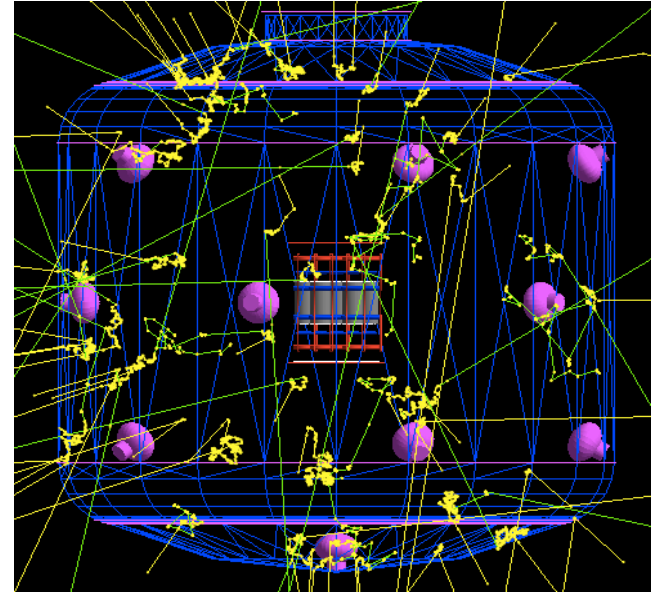
SABRE PoP

- Background model based on simulation ([1806.09344](#))
- Expected sensitivity to WIMPs of a full experiment ([1806.09340](#))
- Expected sensitivity to quantum collapse models (on going)
- Analysis of the 2020 crystal data (on going)

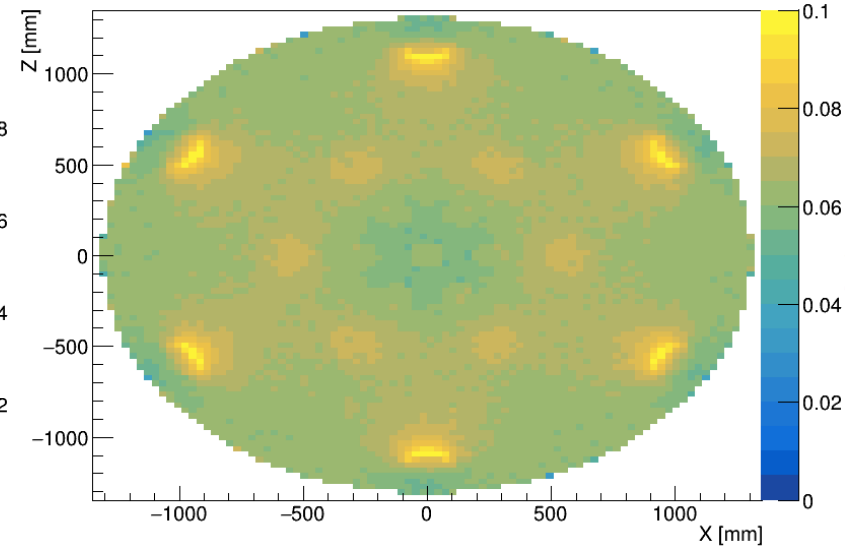
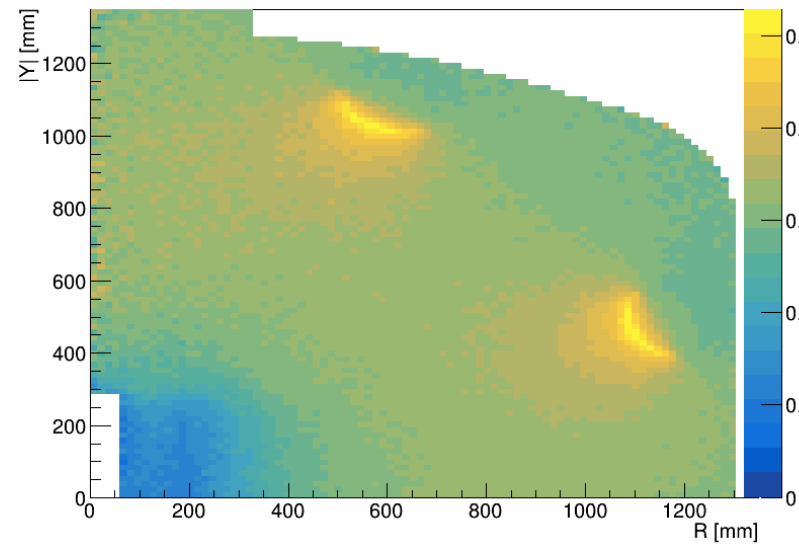


SABRE South

- Coordinate the simulation studies
- Contribute to the experiment design
- Construction of a comprehensive background model of the experiment



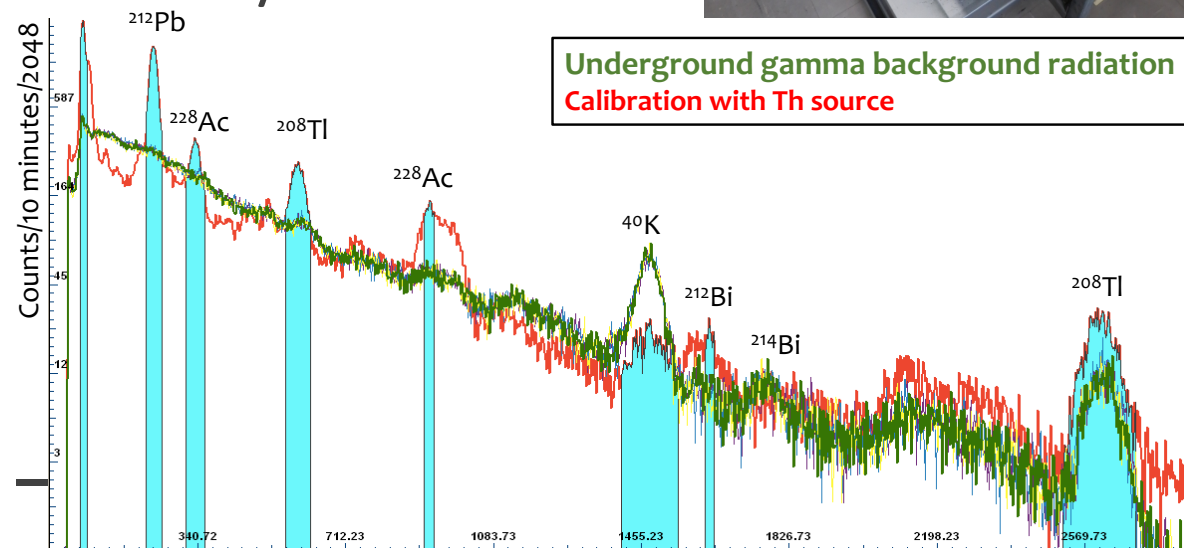
Photon detection probability in veto





Radiation testing

- Gamma ray detection with two NaI(Tl) crystals provided by ANSTO
- Measure SUPL site natural radioactivity
- Test radiopurity of materials for the construction of SUPL/SABRE



Underground gamma background radiation
Calibration with Th source

