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Type: **Talk**

## The ADAMO Project for the Dark Matter Directionality Approach

*Thursday 1 October 2020 16:35 (25 minutes)*

Anisotropic scintillators offer a unique possibility to exploit the so-called directionality approach to investigate the presence of Dark Matter (DM) candidates that induce nuclear recoils. In fact, their use can overcome the difficulties in detecting traces of extremely short nuclear recoils. In this talk, recent measurements on the anisotropic response of a  $\text{ZnWO}_4$  crystal scintillator to  $\alpha$  particles and to nuclear recoils will be presented, within the ADAMO project. Such anisotropic features were initially measured with  $\alpha$  particles also confirmed by the additional measurements given here. The experimental data on nuclear recoils were obtained using a neutron generator at ENEA-CASACCIA and a dedicated experimental set-up. In particular, the “quenching” factors for the nuclear recoils along the different crystallographic axes were determined for three neutron diffusion angles (i.e. three different values of nuclear recoil energies). From these measurements, the degree of anisotropy was determined at  $5.4 \sigma$  standard deviations. An example of reachable sensitivity in a given scenario within the ADAMO project will also be discussed.

### Is this abstract from experiment?

Yes

### Internet talk

Yes

### Name of experiment and experimental site

DAMA

### Is the speaker for that presentation defined?

Yes

### Details

V. Caracciolo

**Primary authors:** Dr CARACCILO, Vincenzo (University of Rome Tor Vergata); ON BEHALF OF ADAMO COLLABORATION

**Presenter:** Dr CARACCILO, Vincenzo (University of Rome Tor Vergata)

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