

The progress of NEWSdm experiment in Italy

The NEWSdm experiment uses fine-grained nuclear emulsion as a tracking detector with superior spatial resolution.

Background rejection is a common problem for dark matter search experiment towards their scale-up. Serious backgrounds in the nuclear emulsion are fake physical signals, represented by contaminated dust.

We constructed a new facility at the LNGS. It is world-first underground production facility of nuclear emulsion, and we are trying a production under clean environment and filtering of materials as a primary measure of dust reduction.

Analytical methods are also studying. To derive much information from the microscope, we analyze light polarization and colors. In addition to reasonable selection, we are studying machine learning method connects all information by direct learning from images.

I will introduce recent progress of new kind of studies for background reduction.

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