

# National Conference on AI & ML Driven Recent Advances in Condensed Matter and High Energy Physics

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## Advantage of Nuclear Emulsion Detector in Rare Event Searches

A type of photographic emulsion known as “nuclear emulsion” reveals the passage of charged particles during chemical development and leaves behind visual traces of silver grains. In addition to its remarkable spatial resolution, capacity to serve as both a tracking and target device, and excellent signal-to-noise ratio for particular kinds of reactions, nuclear emulsion detectors (NED) provide distinct benefits in rare event searches. The NED applications for directional dark matter searches, exotic particle detection, and high-precision particle trajectory imaging to probe nuclear interactions will be the main focus of this work.

### Condensed Matter Physics

High Energy Physics

### High Energy Physics

High Energy Physics

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