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# Development of Portable Neutron Detectors: Integrating Organic Scintillators and Silicon Photomultipliers for Enhanced Radiation Monitoring

The demand for portable neutron detectors is rapidly increasing in fields such as medical diagnostics, environmental monitoring and, and nuclear safety, where precise detection of neutron radiation is crucial in areas with potential radioactive exposure. This study presents the detection efficiency of neutrons using boron-loaded plastic scintillators, analyzed through Monte-Carlo simulations. We also highlight recent developments that focus on integrating organic liquid scintillators with silicon photomultipliers (SiPMs) to enhance detection capabilities. This combination of simulation of detector development aims to improve sensitivity and response time of plastic scintillators, ultimately leading to more effective radiation monitoring solutions in diverse application.

## Field of contribution

## Experiment

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