

## A method for sharing dynamic geometry information in studies on liquid-based detectors

*Tuesday, 17 August 2021 15:42 (2 minutes)*

Liquid-based detectors are widely used in particle and nuclear physics experiments. Because fixed method is used to construct the geometry in detector simulations such as Geant4, it is usually difficult to describe the non-uniformity of the liquid in a detector. We propose a method based on geometry description markup language and a tessellated detector description to share the detector geometry information between computational fluid dynamics simulation software and detector simulation software. This method makes it possible to study the impact of a liquid flow and non-uniformity on the key performance of a liquid-based detector, such as the event vertex reconstruction resolution. This will also be helpful in the detector design and performance optimization.

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**Session Classification:** Poster Session

**Track Classification:** 5. 粒子物理实验技术