

# Vertex finding in pile-up rich event for p+p and d+Au collisions at STAR

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Vertex finding is an important part of accurately reconstructing events at STAR since many physics parameters, such as transverse momentum for primary particles, depend on the vertex location. Many analysis depend on trigger selection and require an accurate determination of where the interaction that fired the trigger occurred. Here we present two vertex finding methods, the Pile-Up Proof Vertexer (PPV) and a Minuit based vertexer, and their performance on the 2008 STAR p+p and d+Au data. PPV had been developed for use in p+p collisions and uses a 1D truncated log-likelihood method to determine the most probable Z location of the vertex. The Minuit vertex finder had been developed for Au+Au events and uses the mean dip angle to determine the vertex location. The heart of the Minuit finder is the routine by that name which is a tool that finds the minimum value of a multi-parameter function.

We will present efficiency versus charged track multiplicity as well as the efficiency for both forward and mid-rapidity triggers. A comparison to a hardware determination of the vertex will also be included.

## Presentation type (oral | poster)

oral

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