First ECFA WORKSHOP.

Contribution ID: **44** Type: **Parallel session talk**

ErrorFlow: Jet Error Estimation for Kinematic Fitting in Particle Flow Detectors at Future Higgs Factories

Thursday 6 October 2022 15:15 (15 minutes)

Constrained fits improve the kinematic reconstruction of the final state in many Higgs, top and electroweak physics studies. This is a powerful tool, particularly at e^+e^- colliders where the initial state four-momentum is known and can be employed to constrain the final state. An accurate estimate of the measurement uncertainties, particularly for composed objects like jets, is a crucial ingredient to kinematic fitting. Detectors optimized for particle-flow reconstruction provide a detailed estimation of the covariance matrices for individual particle flow objects in addition to an excellent four-momentum measurement. These can be combined to derive an estimate of the individual covariance matrix of the four-momentum of each jet by an algorithm called ErrorFlow. This contribution will present the improvements by the application of ErrorFlow in the ZH versus ZZ separation at $\sqrt{s}$=250 GeV, using the full simulation of the International Large Detector as an example of a highly-granular ParticleFlow optimized detector concept.

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