

## Fractal dimension analysis in a highly granular calorimeter

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The concept of “particle flow” has been developed to optimise jet energy resolution by best separating the different components of hadronic jets. A highly granular calorimetry is mandatory and provides an unprecedented level of detail in the reconstruction of showers. This enables new approaches to shower analysis. Here the measurement and use of showers’ fractal dimension is described.

The fractal dimension is a characteristic number that measures the global density of the shower. This property is highly dependent on the type of interaction and the particle energy. Its use in identifying particles and estimating their energy is described

in the context of the semi-digital hadron calorimeter for the ILD concept (International Large Detector for the International Linear Collider)

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