

# Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions



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## An object-oriented software framework for anisotropic flow analysis

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We present an object-oriented software framework for performing the anisotropic flow analysis in collisions of ions and hadrons. The framework operates on flow  $Q$ -vectors and provides an abstraction layer for the analysis of two and multi-particle correlation functions. Its modular design and flexible interface allows to use it as an external software package, which fits the scope of any experimental setup.

The current version implements commonly used flow observables, multi-differential corrections of  $Q$ -vectors with the possibility for data preprocessing to account for detector azimuthal non-uniformity. The extension of the core functionality and the definition of new observables and correction steps is straightforward. The framework supports multi-differential flow analyses with statistical uncertainty propagation based on subsampling and/or bootstrapping algorithms. To illustrate the flexibility and powerful functionality of the framework, examples of application to data analyses of ALICE at the LHC, NA49 and NA61/SHINE at SPS, and the future CBM experiment at FAIR will be shown.

**Authors:** KREIS, Lukas (GSI - Helmholtzzentrum für Schwerionenforschung GmbH (DE)); SELYUZHENKOV, Ilya (GSI, Darmstadt); Mr GONZALEZ, Victor (GSI - Helmholtzzentrum für Schwerionenforschung GmbH (DE))

**Presenter:** KREIS, Lukas (GSI - Helmholtzzentrum für Schwerionenforschung GmbH (DE))

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