

# High-resolution studies with secondary reactions via dispersion-matched modes of the in-flight separator Super-FRS and its combined spectrometers

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High-resolution measurements with relativistic fragments present a challenge for in-flight rare isotope facilities such as the future Super-FRS at FAIR. An elegant way to overcome the large longitudinal and transverse emittance of high-energy beams is to use a dispersion-matched ion-optical mode with an Analyser part before the secondary target, coupled with a following Spectrometer part. One scheme for the Super-FRS is to use the Main Separator as the analyser and the Energy Buncher in the Low Energy Branch as the spectrometer. In this case, the 1st-order momentum resolving power is about 10,000 for particles with a magnetic rigidity up to 7 Tm.

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