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Determination of the Ds0*(2317) Width with the PANDA Detector

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The Ds0*(2317) meson which was discovered at BaBar in 2003 has the interesting properties of a surprisingly narrow width and a mass just below the DK threshold. Different theoretical models try to explain the nature of its properties. A precise knowledge of the width is an important criterion to evaluate these models. However, only an upper limit of 3.8 MeV is known so far.

A suitable method to determine the width of particles which are significantly narrower than the experimental mass resolution is to measure the production cross section as a function of the center of mass energy. The shape of this excitation function allows deducing the width.

At PANDA, the measurement of the production cross section will be possible in antiproton-proton collisions. The PANDA experiment at the future FAIR facility is designed to combine precisely adjustable beam momenta and high luminosities which make it an excellent tool for this kind of measurement.

We will present the experimental procedure to determine the width of the Ds0*(2317) meson with the PANDA detector as well as an outlook on the achievable precision and how it is influenced by external parameters.

Autor: Dr. MERTENS, Marius C. (Forschungszentrum Jülich)

Vortragende(r): Dr. MERTENS, Marius C. (Forschungszentrum Jülich)

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