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Dilepton production in pion-nucleon and pion-nucleus reactions (CBM)

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We calculate electron-positron pair production in pion-nucleon and pion-nucleus collisions. Parameters of the model are fitted to pion photoproduction data. We use these cross sections in a transport model to study π-nucleus reactions. We investigate especially what is the effect of the interference between the ρ and ω mesons on the dilepton spectra. . We suggest a way how experimentally the decoherence can be measured in the medium, comparing π-N, π-light nucleus and π-heavy nucleus. These results are meant to give predictions for the planned experiments at the HADES spectrometer in GSI, Darmstadt. These reactions may be studied in JPARC, too.

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