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A Langevin approach for heavy quark propagation at FAIR energies

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We implemented a Langevin approach for heavy quarks to the UrQMD hybrid model, which provides a realistic background medium for the evolution in heavy ion collisions at FAIR energies.

Here we used two different sets of drag and diffusion coefficients, a T-Matrix approach and a resonance model.

In case of the resonance model we also implemented different decoupling temperatures of the heavy quarks from the hot medium between 130 MeV and 180 MeV.

In our calculations we evaluate the nuclear modification factor R_{AA} as well as at the elliptic flow v_2 .

We find that our results depend on the decoupling temperature strongly.

Additionally we investigate the influence of a coalescence versus a fragmentation approach for the heavy quark fragmentation.

Predictions for FAIR energies are calculated and an outlook for RHIC and LHC energies is given.

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