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The PANDA experiment at FAIR

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The physics of strong interactions is undoubtedly one of the most challenging areas of modern science. Quantum Chromo Dynamics is reproducing the physics phenomena only at distances much shorter than the size of the nucleon, where perturbation theory can be used yielding results of high precision and predictive power. At larger distance scales, however, perturbative methods cannot be applied anymore, although spectacular phenomena - such as the generation of hadron masses and color confinement - occur. The antiProton ANnihilations at DArmstadt (PANDA) collaboration has the ambition to address key questions in this field by exploiting a cooled beam of antiprotons at the High-Energy Storage Ring (HESR) at the future Facility for Antiproton and Ion Research (FAIR) combined with a state-of-the-art and versatile detector. In this presentation, I will address some of the highlights of the physics program of PANDA in connection to the ongoing technological developments for FAIR.

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