**Abstract Title (two** **lines maximum)**

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Physical conditions within emission regions of X-ray pulsars are truly extreme: high temperatures (*T* ∼ 108 K), strong magnetic fields (*B* ∼ 1012 G), and gravity (*log g*∼14) make them unique natural laboratories for fundamental physics under extreme conditions. To fully exploit this potential, one needs, however, to understand the astrophysics of these objects, i.e. how the observed emission is produced, and while the basic emission mechanism, i.e. accretion, was understood early on, a clear and coherent understanding of the physical processes at work in the emission regions of accreting pulsars has not yet been reached. In the talk I will present an overview of the IXPE mission which has recently opened a new observational window in terms of X-ray polarimetry, and first observation results obtained during its first year of operation in context of studies of plasma physics in vicinity of accreting neutron stars.