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The enhanced X-ray Timing and Polarimetry mission eXTP: a future X-ray mission to study the state of matter under extreme conditions

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The eXTP (enhanced X-ray Timing and Polarimetry) mission is a major project of the Chinese Academy of Sciences (CAS), with a large involvement of Europe and expected ESA support. It is designed to study the state of matter under extreme conditions of density, gravity and magnetism, as for instance what is happening on the vicinity of black holes or what is the state of matter inside neutron stars. Its predicted launch is in 2027. eXTP will carry a unique suite of instruments, enabling for the first time ever the simultaneous spectral-timing-polarimetry studies of cosmic sources in the energy range from 0.5 to 30 keV. The eXTP scientific payload includes four instruments: SFA (Spectroscopy Focusing Array), PFA (Polarimetry Focusing Array), LAD (Large Area Detector) and WFM(Wide Field Monitor). They offer an unprecedented simultaneous wide-band X-ray timing and polarimetry sensitivity. A large European consortium is contributing to the eXTP study, both for the science and the instrumentation, providing two of the four instruments: LAD and WFM. The WFM for eXTP will be a wide field X-ray monitor instrument in the 2-50 keV energy range. Its unprecedented combination of large field of view and imaging down to 2 keV will allow eXTP to make important discoveries of the variable and transient X-ray sky, outstanding contributions to multi-messenger astronomy.

Primary author: Prof. HERNANZ CARBO, Margarita (ICE (CSIC) & IEEC)

Presenter: Prof. HERNANZ CARBO, Margarita (ICE (CSIC) & IEEC)

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