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GPU Supported Simulation of Transition-Edge Sensor Arrays

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We present simulation software utilizing graphical processing units (GPUs) for the physics of detectors based on arrays of transition-edge sensors (TES).

With the support of GPUs it is possible to perform simulations of large pixel arrays, making the software a powerful tool in detector development.

Comparisons with TES small-signal and noise theory confirm the representativity of the simulated data.

In order to demonstrate the capabilities of this approach we present its implementation in XIFUSIM, a simulator for the X-ray Integral Field Unit, a cryogenic X-ray spectrometer on board the future Athena X-ray observatory.

Less than 5 years of experience since completion of Ph.D

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Student (Ph.D., M.Sc. or B.Sc.)

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