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A flexible GPU-accelerated radio-frequency readout for superconducting detectors

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JPL has developed a flexible radio-frequency readout system suitable for a variety of superconducting detectors commonly used in millimeter and sub-millimeter astrophysics, including Kinetic Inductance detectors (KIDs), Thermal KID bolometers (TKIDs), and Quantum Capacitance Detectors (QCDs). Our system avoids custom FPGA-based readouts in favor of commercially available software defined radio and a C++/CUDA programmed GPU to handle real time signal processing. We demonstrate the performances, the stability and the flexibility of the system by showcasing procedures and results obtained in different readout scenarios.

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

Y

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

N

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