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## Green Bank Telescope Focal Plane Array Data Processing Challenges

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### *Abstract*

The combination of high sensitivity, unblocked aperture and wide field-of-view of the Robert C. Byrd Green Bank Telescope (GBT) is ideally suited for focal-plane array receivers. Large spectroscopic focal plane array receivers at centimeter and millimeter wavelengths will enable new scientific capabilities with the GBT, both as a stand-alone instrument and in combination with the Expanded Very Large Array (EVLA) and Atacama Large Millimeter Array (ALMA) interferometers. Expanding the number of feeds in focal plane receivers over the current generation of single-pixel receivers amplifies the amount of data. GBT focal plane arrays could produce data at 1 GB per second or approximate 80 TB a day during peak usage. A parallelized data reduction pipeline and on-line data visualization tools are essential to scale the GBT data acquisition system to the levels required for processing focal plane array data. We describe the data processing and curation challenges generated by the GBT focal-plane array program.

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