Computing Spectropolarimetric Signals on Accelerator Hardware. Comparing the Cell BE and NVIDIA GPUs

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Rapid calculation of the Voigt profile is critical for high performance in computational spectropolarimetric analysis. The Curtis and Osborne approximation to the Voigt function is arithmetically dense and embarrassingly parallel which makes it an intriguing candidate for exploiting accelerator technologies. We implement versions for the Cell Broadband Engine and for an NVIDIA GPU, and compare both the performance and the programmability of the two platforms.