

Abstract Submitted
for the MAS17 Meeting of
The American Physical Society

Platform-independent radio radiation transfer codes for GX Simulator. ZACHARY BREIT, ALICE GAO, ALEXEY KUZNETSOV, GELU NITA, GREGORY FLEISHMAN, New Jersey Inst of Tech — GX.Simulator, a solar modeling tool developed in the Interactive Data Language (IDL), relies on fast radio radiation transfer codes implemented as system-dependent executables (DLLs). Although the Fast Gyrosynchrotron Codes (FGCs) were already implemented in IDL to calculate intensities for a single volume element, they could not perform the radiation transfer calculations to find intensity along a line of sight. Here we report the implementation of the radio radiation transfer codes developed in IDL, optimized using matrix operations, and tested against the original executables, which provide independence on the operating system. In order to improve performance, the functionality of the FGCs was enhanced to match that of the original programs. In particular, four energy distributions and five pitch angle distributions were programmed and tested. Once the remaining distributions are implemented and tested, the IDL radiation transfer programs will be mature to be implemented into the official GX.Simulator release.

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Date submitted: 28 Sep 2017

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