

## **Generation of INTEGRAL/SPI Response Matrices**

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The Spectrometer for INTEGRAL (SPI) is a gamma-ray spectral imager with an angular resolution of 3 deg and an a typical energy resolution of  $E/\Delta E = 500$  at 1 MeV. This combination of high energy resolution and moderate angular resolution results in an instrumental response function which covers a very large volume of phase space. The generation of such a response function in full detail would require prohibitive amounts of CPU time and storage capacity. Several methods for generating and compressing the SPI response function are under investigation at the Goddard Space Flight Center. They generally involve separating the response function into spatial and energy dependent components followed by a further separation based on the point of first scatter of the incident photon. Extensive trial response matrices have been generated using the MGEANT code (a GSFC-developed variant of GEANT) which incorporates a detailed mass/geometry model of SPI. These data sets have been used to test various compression methods. Results of these tests are given in this poster.