



## Charge Exchange Effects in the Saturnian System

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One of the first surprises from the Cassini observations of the Saturnian system has to do with the apparent presence of a large amount of neutral gas in the magnetospheric environment as indicated by measurements from the UVS and MIMI experiments. On the basis of the theoretical work since the Voyager flyby observations, the evolution of the radial distribution and magnetospheric energetic charged particles at different time scales could be simulated and be compared with future Cassini observations. We will also examine the scenario in which neutral atoms created in charge exchange process could be re-ionized and hence re-accelerated in the Saturnian magnetosphere.