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## **Electrostatic Reconnection in the Ionosphere**

Abstract:

Nighttime equatorial plasma bubble merging is examined using the NRL code SAMI3/ESF. It is found that bubbles merge through an 'electrostatic reconnection' process. As multiple bubbles develop, the electrostatic potential associated with one bubble can connect with that of a neighboring bubble: this provides a pathway for the low density plasma in one bubble to flow into the adjoining bubble and merge with it. Additionally high-speed plasma channels ( $\sim 100$ s m/s) can develop during the merging process. Optical data is presented of equatorial plasma bubble evolution that suggests bubble merging occurs in the nighttime equatorial ionosphere.