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\title{Benzene and Polar Haze Formation in the Atmosphere of Jupiter}
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\begin{abstract}
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The giant planets are characterized by large magnetospheres that episodically precipitate large amounts of energy into their polar atmospheres, giving rise to intense auroras. An important consequence of this energy influx is the production of a dark haze, the formation mechanism of which was hitherto poorly known. Recent observations of benzene on Jupiter (1) provide new clues for a chemical and aerosol model for the formation of heavy hydrocarbon aerosols. The chemistry begins with the destruction of methane by energetic particles, followed by neutral and ion reactions, ultimately leading to the formation of benzene and other complex hydrocarbons.

The mechanism is likely to be important in the atmospheres of the outer solar system and extrasolar giant planets.

It is an example of how a planetary magnetosphere may influence the chemical composition and climate forcing of the upper atmosphere.

(1) Bezard, et al., *Icarus* 154, 492, 2001.

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