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**The Formation of 3D Flux Ropes in Coronal Mass Ejections**

SPIRO ANTIOCHOS, Naval Research Laboratory, BEN LYNCH, University of Michigan, RICHARD DEVORE, Naval Research Laboratory — It is widely believed that a coronal mass ejection (CME) represents the explosive ejection of a magnetic flux rope from deep in the Sun's corona out to the Heliosphere. A critical issue for understanding the initiation and structure of CMEs is the formation of the ejected flux rope. In one class of models the flux rope forms in the corona well before the ejection, whereas in the “breakout” model the flux rope forms only as a result of the ejection. We present the latest 3D simulations of the breakout model, which demonstrate the formation process, in detail. We argue that the flare reconnection **following** a CME, is the only likely mechanism for creating a large, coherent flux rope in the solar atmosphere.

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