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**Punching Holes in Higher Dimensional Schwarzschild Black Holes**

MATTHEW FOX, Harvey Mudd College — For almost a century, physicists have entertained the idea of extra spatial dimensions. Within general relativity, these extra dimensions allow physical processes that are otherwise forbidden in the usual four dimensional setting. In this talk, I will investigate the surprising behavior of higher dimensional Schwarzschild black holes when electric charges fall into them. Contrary to the "hairless" four-dimensional case, in higher dimensions this process endows the black hole with electric multipole hair. Interestingly, this implies the topology of the event horizon changes as the charge falls in.

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