The octonions
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Date / Time / Location: Thu. March 15, 2012,   1:00 - 2:30,   JD35.

Abstract:

We will be reading John Baez's octonions paper (http://arxiv.org/pdf/math/0105155.pdf). In Baez's words:

"There are exactly four normed division algebras: the real numbers, complex numbers, quaternions, and octonions. The real numbers are the dependable breadwinner of the family, the complete ordered field we all rely on. The complex numbers are a slightly flashier but still respectable younger brother: not ordered, but algebraically complete. The quaternions, being noncommutative, are the eccentric cousin who is shunned at important family gatherings. But the octonions are the crazy old uncle nobody lets out of the attic: they are nonassociative."

This series of lectures will touch on the octonions and their relation to Clifford algebras and spinors, Bott periodicity, projective and Lorentzian geometry, Jordan algebras, and the exceptional Lie groups.