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F-FIBERING SOME DAVIS MANIFOLDS

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Davis manifolds are a particularly nice class of closed aspherical manifolds associated to flag triangulations of spheres, with combinatorial properties of the triangulation dictating geometric and topological properties of the manifold. In their investigation of Singer's L^2 vanishing conjecture, (and inspired by the virtual fibering conjecture for hyperbolic 3-manifolds) Davis and Okun suggested that all such odd dimensional manifolds should virtually fiber over a circle. In earlier work, Okun, Schreve and I showed that this is not the case in general. In this talk, I'll discuss a recent positive result showing that some odd dimensional Davis manifolds do virtually F-fiber for a field F (this is a strong form of algebraic fibering), and in particular describe a combinatorial edge contraction operation on the underlying triangulation that preserves F_2-fibering.

Joint work with Boris Okun and Kevin Schreve.