CCSU

DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, October 18
3:00 – 4:00 PM
Maria Sanford, Room 101

SIMPLE, BUT NOT EASY – ALGEBRAICALLY "SIMPLE" MANIFOLDS WHICH DO NOT EMBED IN MOST COMPACT SPACES

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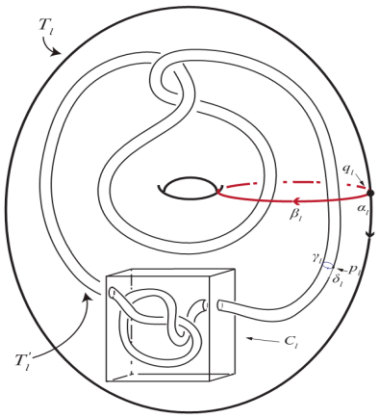
Abstract: Counterexamples for every open 3-manifold embeds in a compact 3-manifold have been discovered for over six decades. Indeed, there are plenty of such examples even for open manifolds which are algebraically very simple (e.g., contractible). A rudimentary version of such examples can be traced back to the work of J. H.C. Whitehead who surprisingly found the first example of a contractible open 3-manifold different from R^3. However, Whitehead manifold does embed in S^3. In 1962, Kister and McMillan conjectured that an example proposed by R. H. Bing (see the attached Figure) is a desired counterexample, i.e., such example embeds in no compact 3-manifold. This conjecture was confirmed later (in '68) by Haken using his famous finiteness theorem stating that there is an upper bound on the number of incompressible nonparallel surfaces in a compact 3-manifold. However, a (natural) question about whether Bing's example can embed in most (or more general) compact spaces remained open. In this talk, we answer the above question in negative.



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