Determine homotopy classes by the mean curvature flow

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Abstract

A map is said to be homotopic equivalent to another map if there is a continuous path of maps connecting the two. Surprisingly a geometric flow such as the mean curvature flow provides natural paths to deform a map to a canonical representative in its homotopy class. I shall discuss this approach and its applications, and in particular some recent results regarding the homotopy class of maps between complex projective spaces. This is based on joint work with Chun-Jun Tsai and Mao-Pei Tsui, both of National Taiwan University.