Abstract:

In the last 35 years, geometric flows have proven to be a powerful tool in geometry and topology. The Mean Curvature Flow is, in many ways, the most natural flow for surfaces in Euclidean space. In this talk, which will assume no prior knowledge, I will illustrate how mean curvature flow could be used to address geometric questions. I will then explain why the formation of singularities of the mean curvature flow poses difficulties for such applications, and how recent new discoveries about the structure of singularities (including a work joint with Kyeongsu Choi and Robert Haslhofer) may help overcome those difficulties.