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Yong Wei is currently a professor at the University of Science and Technology of China. He obtained his PhD in 2014 from Tsinghua University under the supervision of Professor Haizhong Li. He then did postdoctoral research at University College London from 2014 to 2016, and subsequently at the Australian National University from 2016 to 2018. From 2019 to 2020, he held an ARC DECRA Fellowship at the Australian National University. In 2020, he joined the University of Science and Technology of China as a professor. His research primarily focuses on differential geometry and geometric analysis, especially on geometric flows and their applications.

Title: Inverse curvature type flows and geometric inequalities

Abstract:

I will describe some recent work on locally constrained inverse curvature flows for hypersurfaces and their applications in proving geometric inequalities. These flows were first introduced by Brendle-Guan-Li in the case of space forms and were recently extended to cases with boundaries. The flow speed involves higher-order mean curvature and includes a local term designed to preserve certain natural geometric quantities, such as quermassintegrals. We show that the flow has a natural monotonicity property, preserves some convexity, and exhibits long-time existence and convergence. These results can be applied to establish isoperimetric-type geometric inequalities for hypersurfaces.