



*Institute of Mathematical Research
Department of Mathematics*

Analysis Seminar

Finite-time blow-up of the n -harmonic map flow

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Abstract

Initiated by Eells and Sampson in the 1960's, our problem of interest is how to classify maps between manifolds by harmonic maps. Specifically, can a smooth harmonic map representative be found in a fixed homotopy class of maps between manifolds?

By introducing the heat flow method, Eells-Simpson gave an affirmative answer to this question when given the sectional curvature of the target manifold is non-positive. However, Chang, Ding and Ye constructed a counter-example which showed that the harmonic map flow can blow up in finite time from a two-dimensional manifold (i.e. $n = 2$).

For $n > 2$, there is no good answer to the Eells-Sampson question. Related to this, Hungerbühler studied the n -harmonic map flow and conjectured that the n -harmonic map flow would blow up in finite time.

This question has remained open for $n > 3$. We study this challenging problem and confirmed Hungerbühler's conjecture in this project.

Date: January 8, 2018 (Monday)

Time: 2:30 - 3:30pm

Venue: Room 210, Run Run Shaw Bldg., HKU