For favour of Posting

THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

PHD STUDENT SEMINAR

On the L^2-gradient flow of the Willmore energy functional and the Hawking mass functional on a closed 2-surface

By

Mr. Nicholas Cheng Hoong CHIN

Abstract

The Hawking mass is one of the important notions of mass in general relativity. We study the L^2-gradient flow of the Hawking mass functional, which we will call the Hawking flow for short, on a closed surface in an asymptotically flat Riemannian 3-manifold. A highly related functional is the Willmore energy functional. Thus to begin with, we will first review the results developed for the L^2-gradient flow of the Willmore energy functional, which is commonly known as the Willmore flow, on a closed surface in $\mathbb{R}^3$. We will sketch the proof for the longtime existence of the solution to the Willmore flow, with the main focus on developing the higher order estimates. Then, we shall discuss the difference between the two flows and the modifications required to establish the longtime existence for the Hawking flow.

Date : 22 May 2020 (Friday)
Time : 10:00am – 11:00am
Zoom Meeting : http://hkust.zoom.us/j/3548208335

All are Welcome!