

國立中山大學應用數學系

學術演講

講者：Prof. Larsson (Uppsala University)

講題：Constructing a meshfree method for simulation of the human respiratory system

時間：2024/11/7(Thursday) 15:30~16:30

地點：理 SC 4009-1 教室

茶會：15:10

Abstract

To better understand the function of the human respiratory system, and especially the adverse effects arising from mechanical ventilation of intensive care patients, we aim to build a meshfree simulation model of the human diaphragm. The diaphragm, which is a thin structure, is the main muscle involved in breathing. The complex geometry, the high aspect ratio and the associated anisotropy contribute to making it a challenging problem to model with numerical methods. We have developed an unfitted radial basis function partition of unity method that we apply both for reconstructing the diaphragm geometry from medical image data, and for solving an elasticity partial differential equation in the diaphragm geometry. The final model that we want to build includes muscle activation and underlying hyper-elastic material properties. However, in this talk, we mainly focus on a linear elasticity model problem and discuss how to implement mixed boundary conditions such that the resulting solution function is smooth.

敬請公告！歡迎參加！

應用數學系：<http://math.nsysu.edu.tw>

校園地圖：http://math.nsysu.edu.tw/var/file/183/1183/img/779/nsysu_math_map.jpg

交通資訊：<https://www.nsysu.edu.tw/p/412-1000-4132.php?Lang=zh-tw>



應用數學系



校園地圖



交通資訊