

# Numerical Study and Application of Partial Differential Equations on 3D Surfaces

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## ABSTRACT

Numerical studies of partial differential equations(PDEs) on three-dimensional surfaces have a variety of applications such as pattern formation, convection phenomenon, medical fields, diblock copolymer, fluid mechanics. Since an exact solution is not always exist, accurate and efficient numerical approximation is needed. In this talk, I will explain some methods(narrow band domain, closest points method, Laplace–Beltrami operator) of numerically solving PDEs on a three-dimensional surface, and introduce the currently working on researches: Comparison spherical Laplacian and Laplace–Beltrami operator, Effect of curvature on sphere, Optimal scaffold shape, etc.

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