Public Abstract

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Graduation Term:SP 2008

Department:Mathematics

Degree:MST

Title:Surface to Surface Changes of Variables and Applications

The present thesis addresses a number of basic problems concerning integration over surfaces in the Euclidean space. Some of the aspects we are concerned with are as follows:
1. how the surface measure and unit normal changes under a smooth diffeomorphism;
2. how the integration process is affected by a surface to surface change of variables.
We provide precise answers to these and other related issues, and discuss a number of applications, such as the invariance of Lebesgue and Sobolev spaces on surfaces.