

**Stony Brook University
The Graduate School**

Doctoral Defense Announcement

Abstract

On a General Chain Model of the Free Loop Space

And String Topology

By

Xiaojun Chen

Let M be a smooth oriented manifold. The homology of M has the structure of a Frobenius algebra (in fact there are two of them). We show that on chain level there is a Frobenius-like algebra structure on M , whose homology gives such Frobenius algebra. We next show that associated to any Frobenius-like algebra, there is a chain complex whose homology has the structure of a Gerstenhaber algebra and a Batalin-Vilkovisky algebra. If the Frobenius-like algebra comes from M , we get the free loop space LM and String Topology of Chas-Sullivan.

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Dissertation Advisor: Dennis P. Sullivan