

**Stony Brook University
The Graduate School**

Doctoral Defense Announcement

Abstract

On the Lego-Teichmuller game for finite G cover

By

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Given a smooth oriented closed surface of genus zero, possibly with boundary, we first fix a G -cover of this surface where G is a fixed finite group. To understand this, we break down this G cover into several pieces and each piece is identified with a G cover of a sphere with a certain number of holes. We call a G cover of a sphere with holes a “standard block”. Given a G cover of a surface, there are many different ways to identify this G cover with gluing of one or several “standard blocks”. We give a description of all the ways in which a given G cover can be obtained by such a gluing process. In the case when G is a trivial group, this kind of gluing process is called “Lego-Teichmuller game”. We extend this notion of “Lego-Teichmuller game” in a more general situation when G is a finite group. First, we consider a complex where each vertex is such an identification. Then we define some simple moves and relations or 2-cells which will turn this complex into a connected and simply connected complex. This will be used in the future paper to construct G -equivariant modular functors. This G -equivariant modular functor will be an extension of the usual modular functor.

Date: May 06, 2008

Time: 2:30 pm

Place: Math Tower 5-127

Program: Mathematics

Dissertation Advisor: Alexander Kirillov Jr.