List of Dissertation Abstract

（Information Media and Environment Sciences　Environmental Mathematical Analysis Course）

Name	Supervisor	Title	Abstract
Asami KIMURA	Seiya NEGAMI	The tesseract represented as a 3-dimensional projection with projection mapping	The 4-dimensional space is defined by considering the fourth direction which is orthogonal to the entire 3D space. People cannot see the 4D space directly, so it is difficult for them to understand its real nature with lower dimensional projected graphics. For promotion of people's understanding, we selected Projection Mapping (PM) as a new visualization by which they can feel the existence of 4D space. We created the tesseract with projection mapping, showed it to the audience, and tried questionnaires.
Ayaka SUGIHARA	Seiya NEGAMI	Distinguishing coloring of truncated 3-regular polyhedral maps on closed surfaces	A distinguishing k-coloring of a graph G is defined as a proper coloring with k colors such that no automorphism of G other than the identity map preserves the colors. We call a 3-connected planar graph embedded on the sphere a polyhedron and its truncation is obtained from it by replacing a small local part around each vertex with a cycle. Any polyhedron is polyhedral. A map $M(G)$ on a closed surface is polyhedral if and only if so is its truncation. We shall show that any truncated 3-regular polyhedral map on the sphere, the projective plane, the torus and the Klein bottle is distinguishing 3-colorable.
Ataru SUZUKI	Seiya NEGAMI	Distinguishing chromatic number of 6-regular triangulation on tha torus and Klein bottle	A labeling of the vertices of a graph G, $f_d : V(G) \rightarrow \{1,...,d\}$, is said to be proper d-distinguishing if it is a proper coloring of the graph and automorphism of the graph that preserves all of the vertices labels is only identity mapping. Distinguishing chromatic number should be considered on a surface. In this paper, distinguishing chromatic number of parameterization of 6-regular triangulations which are known chromatc number is determined the value. But this proper coloring dose not distinguish, the unique triangle two lengths of edges or suabilizer method can distinguish the 6-regular triangulation on the torus and Klein Bottle.