

2011年度 後期	対象学年	4年	レベル	2	2単位	専門科目・選択
【Subject and Title】 Perspectives in Mathematical Sciences IV Scissors Congruence and Hilbert's Third Problem						
【Lecturer】 Lars Hesselholt						
【The Method of Evaluation】 Grades based on attendance and written reports.						
【References】						
[1] Johan L. Dupont, <i>Scissors congruence, group homology and characteristic classes</i> , Nankai Tracts in Mathematics, Vol. 1, World Scientific.						
【The Purpose of the Course】 It has been known since ancient times that two polygons that have the same area can be divided into a finitely many pairwise congruent triangles. Hilbert, in his third problem at the ICM 1900, asked whether two polyhedra that have the same volume can be divided into finitely many pairwise congruent tetrahedra. Dehn proved within the same year that the answer is no: A cube and a tetrahedron of equal volume cannot be divided into finitely many pairwise congruent tetrahedra. Two polyhedra are called scissor's congruent if they can be divided into finitely many pairwise congruent tetrahedra. The question of how to parametrize the set of polyhedra up to scissor's congruence turns out to involve much of the modern mathematics developed in the twentieth century. We will discuss the solution to this question along with the modern mathematical structures involved.						
【The Plan of the Course】 We discuss the scissors congruence problem and proceed from there.						
【Keywords】 Scissor's congruence, Hilbert's third problem, homology of groups.						
【Required Knowledge】 Knowledge of standard undergraduate linear algebra.						
【Attendance】 《未記入》						
【Additional Advice】 《未記入》						
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