

無限次元構造論

11月7日(水)	15:00 - 17:00	数理科学研究科(駒場)002号室
11月9日(金)	15:00 - 17:00	数理科学研究科(駒場)002号室
11月12日(月)	15:00 - 17:00	数理科学研究科(駒場)118号室
11月13日(火)	15:00 - 17:00	数理科学研究科(駒場)122号室
11月14日(水)	15:00 - 17:00	数理科学研究科(駒場)002号室

Ivnov Alexander 氏 (ロンドン大学インペリアルカレッジ)

散在型有限単純群モンスターへの入門

Approaching the Monster

The lecture series is based on an ongoing project to built up the theory of the Monster group starting with what is called the Monster amalgam. The latter is formed by three groups and the axioms specify their normal series and also the indexes of their intersections. The main steps of the project are the following: (1) prove that the amalgam (subject to the axioms) exists and unique up to isomorphism; (2) construct a faithful representation of the amalgam, by which it is meant a representation for each of the three groups, forming the amalgam, which agree on the intersections (the representation has dimensions 196,883); (3) show that the representation in (2) preserves a commutative algebra and inner products on the underlying vector space and that one member of the amalgam is the centralizer of an involution in the automorphism group of the products (this enables one to show that the image under the representation is a nonabelian simple group); (4) calculating with the universal completions of various subamalgams in the Monster amalgam identify a number of important subgroups in the Monster including the double cover of the Baby Monster; (5) considering the action of the Monster group (which by our definition is the universal completion of the Monster amalgam) on the cosets of the double cover of the Baby Monster show that there exists only one completion of the Monster amalgam (this unique completion is universal and coincides with the image under the 196,883-dimensional representation); (6) calculating with the 196,883-dimensional representation determine the number of the Baby Monster type involutions in the Monster, which gives the order of the Monster. Within the lecture course I will also give a general introduction to the theory of the sporadic simple groups viewed in the framework of the classification of finite simple groups.