

## TALK TITLE AND ABSTRACT

- 강연 1(11:00–11:30)

Title: Knot types of twisted torus knots

Speaker: Sangyop Lee (Chung-Ang University)

Abstract: A twisted torus knot is obtained from a torus knot by adding a number of full twists to some adjacent strands of the torus knot. We discuss the knot types of these knots.

- 강연 2(11:30–12:00)

Title: Interaction of Fluid and Rigid Body or Particles, and Applications

Speaker: Hyeong-Ohk Bae (Ajou University)

Abstract: We present mathematical analysis on fluid and its interaction with rigid body or particles. We review several kinds of fluids, for example, Newtonian and non-Newtonian. We also mention their interaction with rigid body or particles, which are observed in various phenomena including airplane in the sky and mosquito spray. We introduce their mathematical models and problems.

- 강연 3(14:00–14:30)

Title: Modular forms in number theory

Speaker: Yoon Kyung Park (Gongju National University of Education)

Abstract: Number theory is the one of the oldest area in mathematics and the theory of modular form is the one of the main stream of number theory. In this talk, we focus on the role of modular forms in several areas of number theory.

- 강연 4(14:30 – 15:00)

Title: Variation of Kähler-Einstein metrics and its extension

Speaker: Young-Jun Choi (Pusan National University)

Abstract: A canonically polarized compact Kähler manifold, which is a compact Kähler manifold whose first Chern class is positive, admits a unique Kähler-Einstein metric whose Ricci curvature is  $-1$  by Aubin and Yau's theorem. In 2012, Schumacher proved that the variation of Kähler-Einstein metrics on a family of canonically polarized compact Kähler manifolds is positive definite on the total space. This celebrated theorem explains the relation between complex structures and Kähler-Einstein metrics. Moreover, it has many applications on deformation theory and moduli spaces. In this talk, we will briefly introduce Schumacher's result and how to apply his method to a family of strongly pseudoconvex domains and a family of Calabi-Yau manifolds whose first Chern class vanishes. We will also discuss the extension of the variation of fiberwise Kähler-Einstein metric and the curvature of the relative canonical line bundle.