

Lie Groups and Representation Theory Seminar at the University of Tokyo

リー群論・表現論セミナー

DATE July 28 (Wed), 2021, 17:00–18:00

PLACE Online

SPEAKER **Yoshiki Ohima** (大島芳樹) (Osaka University)

TITLE Ricci 平坦計量の崩壊と Monge–Ampere 方程式の解のアプリオリ評価
Collapsing Ricci-flat metrics and a priori estimate for the Monge–Ampere equation

ABSTRACT Yau は Monge–Ampere 方程式の解のアプリオリ評価を行って Calabi 予想を証明した。近年ファイバー空間の構造を持つ Calabi–Yau 多様体について、底空間の Kahler 類に崩壊するような Ricci 平坦 Kahler 計量の振舞が Gross–Tosatti–Zhang 等により研究されている。尾高悠志との共同研究 (arXiv:1810.07685) で得られた K3 曲面の球面への Gromov–Hausdorff 収束も、これらの Monge–Ampere 方程式の解の評価に基づいている。この講演では、微分方程式の解の評価がどのように自然な計量の存在や Gromov–Hausdorff 収束を導くかをお話ししたい。

Yau proved the Calabi conjecture by using a priori estimate for the Monge–Ampere equation. Recently, for a Calabi–Yau manifold with a fiber space structure, the behavior of Ricci-flat metrics collapsing to a Kahler class of the base space was studied by Gross–Tosatti–Zhang, etc. The Gromov–Hausdorff convergence of K3 surfaces to spheres obtained by a joint work with Yuji Odaka (arXiv:1810.07685) is also based on those estimates for solutions to the Monge–Ampere equation. In this talk, I would like to discuss how an estimate of solutions to differential equations deduces the existence of canonical metrics and the Gromov–Hausdorff convergence.