

# Lie Groups and Representation Theory Seminar at the University of Tokyo

リー群論・表現論セミナー

(Joint with Tuesday Seminar on Topology)

DATE April 26 (Tue), 2022, 17:00–18:00

PLACE Online

SPEAKER **Yoshiki Oshima** (大島芳樹) (The University of Tokyo)

TITLE On the existence of discrete series for homogeneous spaces / 等質空間の離散系列表現の存在条件について

ABSTRACT When a Lie group  $G$  acts transitively on a manifold  $X$ , an irreducible subrepresentation of  $L^2(X)$  is called a discrete series representation of  $X$ . One may ask which homogeneous space  $X$  has a discrete series representation. For reductive symmetric spaces, it is known that the existence of discrete series is equivalent to a rank condition by works of Flensted-Jensen, T.Matsuki, and T.Oshima. The problem for general reductive homogeneous spaces was considered by T.Kobayashi and a sufficient condition for the existence of discrete series was obtained by using his theory of admissible restriction. In this talk, we would like to see another sufficient condition for general homogeneous spaces and also the case of their line bundles in terms of the orbit method.

Lie 群  $G$  が多様体  $X$  に推移的に作用するとき,  $L^2(X)$  の既約部分表現は  $X$  の離散系列表現とよばれる. 等質空間  $X$  がいつ離散系列表現をもつかという問題を考える. 簡約対称空間については, Flensted-Jensen 氏, 松木敏彦氏, 大島利雄氏の結果より, 離散系列表現が存在する必要十分条件はランクに関する条件で与えられる. 一般の簡約等質空間に対する離散系列表現の存在問題は小林俊行氏により考えられ, 表現の離散分解の理論を用いて十分条件が得られている. この講演では, 一般の等質空間やその上の直線束の場合に, 余随伴軌道の方法を用いて得られる離散系列表現の存在の十分条件についてお話しする.