立命館大学幾何学セミナー

来る **10 月 25 日（月）**に立命館大学幾何学セミナーが行われます．みなさまのご参加をお待ちいたしております．

日時：**2021 年 10 月 25 日（月）16:30〜17:30**

開催方法：Zoom ミーティングでの開催です．下記の URL より 10 月 24 日（日）までにご登録ください．追って，Zoom ミーティングの情報をお知らせいたします．
https://ritsumei-ac-jp.zoom.us/meeting/register/tJItf-CvrzsvG9WCwLjTHe9y53mTQBO5xSLW

講演者：

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タイトル：

Calabi-Yau structure and Bargmann type transformation on the Cayley projective plane

アブストラクト：

The purposes of this talk are

1. to give an explicit expression of *Calabi-Yau structure* on the punctured cotangent bundle $T_0^*(P^2\mathbb{O})$ of the Cayley projective plane $P^2\mathbb{O}$, and based on this expression.

2. to construct a *Bargmann type transformation* between a space of holomorphic functions on $T_0^*(P^2\mathbb{O})$ and the L_2-space on $P^2\mathbb{O}$.

A Kähler structure on $T_0^*(P^2\mathbb{O})$ is found by identifying it with a quadrics in the complex space $\mathbb{C}^{27}\backslash\{0\}$ and the natural symplectic form of the cotangent bundle $T_0^*(P^2\mathbb{O})$ is expressed as a Kähler form.

The space of holomorphic functions on $T_0^*(P^2\mathbb{O})$ corresponds to the Fock space in the case of the original Bargmann transformation.

Our method to construct the transformation is the pairing of two *polarizations*, the natural Lagrangian foliation given by the projection map $\mathbf{q} : T_0^*(P^2\mathbb{O}) \longrightarrow P^2\mathbb{O}$ and the positive complex polarization defined by the Kähler structure.

The transformation gives a quantization of the geodesic flow in terms of one parameter group of elliptic Fourier integral operators whose canonical relations are defined by the graphs of the geodesic flow action at each time. It turns out that for the Cayley projective plane the results are a little bit different from other cases

of the Bargmann transformations for Euclidean space, spheres and other projective spaces.

This talk is based on a joint work with Kurando Baba (@ TUS):
Calabi-Yau structure and Bargmann type transformation on the Cayley projective plane (arXiv:2101.07505, accepted by JMSJ).

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