立命館大学幾何学セミナー

来る **8月29日（金）** 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： **2025年8月29日（金）16:30〜17:30**

開催方法： ハイブリッド開催（立命館大学びわこ・くさつキャンパス ウェストウィング6階談話会室での対面開催及びZoomミーティングによる配信）を予定．
Zoom参加の場合，下記のURLよりご登録ください．ご登録いただいた電子メールアドレスへ，Zoomミーティングの URL等をお知らせいたします．
`https://ritsumei-ac-jp.zoom.us/meeting/register/KB-8OqipSnKhzhIcPoto9Q`

講演者：

Wolfram BAUER 氏

(Leibniz Universität Hannover)

タイトル：

Global lifting and fundamental solution of degenerate operators

アブストラクト：
This talk applies and extends topics of the special lecture course “Subriemannian Geometry and Analysis” which was held at Ritsumeikan University during this week.

On $\mathbb{R}^n$ we consider Hörmander operators $\mathcal{L}$ that are homogeneous of degree 2 with respect to a non-isotropic dilation. Based on a global lifting-procedure by G.B. Folland in [2] there is a Carnot Lie group $\mathbb{G}$ such that $\mathcal{L}$ lifts through a polynomial surjective map $\pi : \mathbb{G} \to \mathbb{R}^n$ to a sub-Laplacian $\mathcal{L}_{\mathbb{G}}$ in sub-Riemannian geometry on $\mathbb{G}$. Due to the additional group and dilation structure existence and properties of a global fundamental solution to $\mathcal{L}$ can be descended through π from corresponding known properties of a fundamental solution to $\mathcal{L}_{\mathbb{G}}$. This lifting and descending process can be made explicit and by choosing suitable coordinates useful estimates or even explicit formulas can be obtained. Partly this talk is based on [1] by S. Biagi and A. Bonfiglioli (2017).

References:

[1] S. Biagi, A. Bonfiglioli, The existence of a global fundamental solution for homogeneous Hörmander operators via a global lifting method, Proc. London Math. Soc. (3), 114 (2017), 855-889.

[2] G.B. Folland, On the Rothschild-Stein lifting theorem, Comm. Partial Differential Equations 2, 161 - 207, (1977).

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