

**Workshop on Mathematical Physics and Pseudo-Differential Operators –
Celebrating Jean Nourrigat's 80th birthday**

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A quantitative version of the Helgason conjecture

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The classical Helgason conjecture claimed that the Poisson transform isomorphically maps the space of distributions on the Furstenberg boundary G/P on a semisimple Lie group G to the space of joint eigenfunctions on its symmetric space G/K , as proven in the '70s by Kashiwara et al. In a related scenario, Knapp-Wallach studied the Poisson transform infinitesimally intertwining certain non-unitary principal series representations with discrete series representations. In this talk, we will show how the Heisenberg calculus give quantitative control on Sobolev mapping properties of Knapp-Wallach's Poisson transform for groups of real rank one. Along the way we prove that this Poisson transform is compatible with smooth functions on the Furstenberg compactification up to compact operators, a result that constituted the last missing piece in Julg's program for the Baum-Connes conjecture for subgroups of real rank one groups. Joint work with Heiko Gimperlein

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