



UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

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Notizie

SEMINARIO

Data: **giovedì 7 giugno**, ore **14:30**

Luogo: **Sala riunioni**, Plesso di Matematica

Relatrice: **Jing Wang**

Department of Mathematics, Purdue University

Titolo: **The subelliptic kernel and heat content
in sub-Riemannian model spaces**

Tutti gli interessati sono invitati a partecipare,
organizzatore Prof. Leonardo Biliotti

Abstract: In this talk I will discuss some analytic results on the model spaces of sub-Riemannian geometry, that carries a bration structure. The simplest example is the Heisenberg group which appears as a at model. The positively and negatively curved models are known as the CR spheres S^{2n+1} and anti-de Sitter spaces AdS^{2n+1} , whose bration structure coincide with the Riemannian submersion

$U(1) \twoheadrightarrow S^{2n+1} \dashrightarrow CP^n;$

$U(1) \twoheadrightarrow AdS^{2n+1} \dashrightarrow CH^n;$

On each space there is a canonical di usion operator: The sub-Laplacian, which is not elliptic but subelliptic. The symmetries of these model spaces enable us to obtain explicit formulas for the associated subelliptic heat kernels.

In the second half of the talk we will consider local power series expansions for geometric or analytic quantities in these models, such as volumes of the tubular neighborhoods of hypersurfaces, and short time asymptotics of the subelliptic heat content. Both expansions provide us with geometric information of the boundaries including perimeter and horizontal mean curvature.

This talk is based on joint works with F. Baudoin and J. Tyson.