ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

B. Buffoni – B. Dacorogna – J. Krieger – M Nguyên – Section Mathématiques

SEMINAIRE D'ANALYSE

- ***VENDREDI 16 MARS 2018 à 14h15 - salle MA A1 12***

➢

Professeur **Marius TUCSNAK** (Université de Bordeaux, FR) donnera une conférence sur le thème:

« Is the reachable space of the 1D heat equation a new Hilbert spaces of holomorphic functions? »

Abstract: This work considers systems described by the heat equation on an interval with L2 boundary controls at the two extremities. We study the reachable space at some fixed strictly positive time. Our main results assert that this space is generally sandwiched between two Hilbert spaces of holomorphic functions defined on a square in the complex plane and which has the initial segment as one of the diagonals. More precisely, we prove that the reachable space contains the Hardy-Smirnov space and it is contained in the Bergman space associated to the above mentioned square. The methodology, quite different of the one employed in previous literature, is a direct one. We first represent the input-to-state map as an integral operator whose kernel is a sum of Gaussians and then we study the range of this operator by combining the theory of Riesz bases for Smirnov spaces in polygons and the theory developed by Aikawa, Hayashi and Saitoh on the range of integral transforms, in particular those associated with the heat kernel.

Lausanne, le 8 mars 2018
BD/HMN/MM

_____
Les séminaires qui ont lieu à la Section de Mathématiques sont annoncés sur Internet
http://memento.epfl.ch/maths/