

First Joint Meeting Brazil Italy of Mathematics  
Special Session: Variational Methods and PDE in  
Imaging

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**Title:** Total variation and Cheeger sets in Gauss space

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**Abstract:** The aim of this talk is to show the isoperimetric problem with fixed volume inside convex sets and other related geometric variational problems in the Gauss space. We prove the existence of a maximal Cheeger set which is convex inside any bounded convex set. We also prove the uniqueness and convexity of solutions of the isoperimetric problem with fixed volume inside any convex set. We relate all these properties with the total variation denoising problem in this context.