
Barcelona Analysis Seminar 2022–2023

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Room. CRM A1 (Universitat Autònoma de Barcelona)

Online streaming (Zoom). [Click here to join.](#)

From anomalous to classical diffusion in a non-linear heat equation

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In this talk, we consider the heat equation with the natural polynomial non-linear term; and with two different cases in the diffusion term. The first case (anomalous diffusion) concerns to the fractional Laplacian operator with parameter $1 < \alpha < 2$, while, the second case (classical diffusion) involves the classical Laplacian operator. When $\alpha \rightarrow 2$, we prove the uniform convergence of the solutions of the anomalous diffusion case to a solution of the classical diffusion case. Moreover, we rigorously derive a convergence rate, which was experimentally exhibited in previous related works.