

UNIVERSITY OF PUERTO RICO
FACULTY OF NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS

COLLOQUIUM

Weighted Lebesgue Inequalities Applied To Convolution Algebraic Structures

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Abstract: In this talk we prove new inequalities in weighted Lebesgue spaces $L^p_\omega(\mathbb{R}^+)$ for $p \geq 1$. We also present a Hardy type inequality with a direct and elegant proof. These inequalities are inspired and applied to show that certain Banach spaces defined by integral kernel operators are Banach modules (respect to certain Banach algebras introduced in the talk) for the usual convolution product $*$ and the cosine one $*_c$ in \mathbb{R}^+ . In particular, these results are applied to several function spaces, for example, fractional Sobolev spaces defined by Weyl fractional derivation.

Date: Wednesday, February 8, 2012

Hour: 10:00-11:00 am

Room: A-227