TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Room 617 Wachman Hall

Monday, October 5, 2015, 2:40 p.m.

Sharp trace-Sobolev inequalities of order 4

by Antonio Aché

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We establish sharp Sobolev inequalities of order four on Euclidean d-balls for d greater than or equal to four. When $d = 4$, our inequality generalizes the classical second order Lebedev-Milin inequality on Euclidean 2-balls. Our method relies on the use of scattering theory on hyperbolic d-balls. As an application, we charcaterize the extremals of the main term in the log-determinant formula corresponding to the conformal Laplacian coupled with the boundary Robin operator on Euclidean 4-balls. This is joint work with Alice Chang.