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Rodrigo Banelos* (banelos@math.purdue.edu), Department of Mathematics, Purdue University, West Lafayette, IN 47907, and **Luis Acuna Valverde**, Department of Mathematics, Purdue University, West Lafayette, IN 47907. *Heat trace and heat content asymptotics for nonlocal operators.*

In this talk we will look at some problems on heat trace and heat content asymptotics when the Laplacian, the generator of Brownian motion, is replaced by the generator of a more general Lévy process, in particular the stable and relativistic stable processes. The central question is the identification of the so called "heat invariants". We look at both, the Dirichlet problem in domains of d -dimensional Euclidean space and Schrödinger operators on R^d . The techniques are both probabilistic and analytic. In case of Schrödinger operators, some of the results are new even for the Laplacian. (Received January 12, 2015)