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Pablo Raúl Stinga* (stinga@iastate.edu), Department of Mathematics, Iowa State University, 396 Carver Hall, Ames, IA 50011. *Extension problem for fractional powers of parabolic operators and applications.*

We show that the fractional powers of any uniformly parabolic operator with time-dependent coefficients can be realized as a Dirichlet-to-Neumann map through a parabolic extension problem in one more dimension. In particular, the fractional powers of the heat operator are considered. Using this characterization we obtain regularity estimates for nonlocal space-time equations, like the master equation from continuous time random walks, as the one considered by L. Caffarelli and L. Silvestre. These results are based on a joint work with J. L. Torrea. As a particular case, we recover the extension problem for the Marchaud fractional derivative, which was previously obtained in joint work with A. Bernardis, F. J. Martín-Reyes and J. L. Torrea. (Received August 03, 2016)