Abstract Submitted for the MAR09 Meeting of The American Physical Society

Continuous Time Random Walks with Internal Dynamics STEPHAN EULE, Max-Planck-Institute for Dynamics and Self-Organization, Goettingen, Germany, RUDOLF FRIEDRICH, Institute of Theoretical Physics, Muenster, Germany, FRANK JENKO, Max-Planck-Institute for Plasmaphysics, Garching, Germany — We formulate a generalized master equation for a class of Continuous Time Random Walks (CTRWs) in the presence of a presribed deterministic evolution between the successive transitions. This formulation is exemplified by means of a generalized advection-diffusion and a jump-diffusion scheme. Based on the generalized master equation the corresponding fractional evolution equations are presented.

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Date submitted: 10 Dec 2008

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