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**Meredith Burr\*** ([mburr@ric.edu](mailto:mburr@ric.edu)), Dept. of Mathematics and Computer Science, Rhode Island College, 600 Mount Pleasant Avenue, Providence, RI 02908. *Continuous-time random walks, their scaling limits, and connections with stochastic integration*. Preliminary report.

Brownian motion is a well-known model for normal diffusion, but not all phenomena can be modeled by Brownian motion; many exhibit irregular diffusive behavior, called anomalous diffusion. Examples have been observed in physics, hydrology, biology, and finance, among many other fields. Continuous-time random walks (CTRWs), introduced by Montroll and Weiss, serve as models for anomalous diffusion. CTRWs generalize the usual random walk model by allowing random waiting times between successive random jumps. Under certain conditions on the jumps and waiting times, scaled CTRWs can be shown to converge in distribution to a limit process  $M(t)$  in the càdlàg space  $\mathbb{D}[0, \infty)$  with the Skorohod  $J_1$  or  $M_1$  topology. An interesting question is whether stochastic integrals driven by the scaled CTRWs  $X^n(t)$  converge in distribution to a stochastic integral driven by the CTRW limit process  $M(t)$ ? We prove weak convergence of the stochastic integrals driven by CTRWs for certain classes of CTRWs, when the CTRW limit process is an  $\alpha$ -stable Lévy motion and when the CTRW limit process is a time-changed Brownian motion. This talk is based on my Ph.D. dissertation, written under the direction of Professor Marjorie Hahn at Tufts University. (Received September 15, 2010)