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Jewgeni H. Dshalalow and **Kizza M. Nandyose*** (knandyose2012@my.fit.edu). *Continuous Time Interpolation of Marked Random Measures and their Applications.*

We study a class of monotone and non-monotone delayed marked point processes that model stochastic networks (under attacks), optional trading, status of queuing systems during vacation modes, responses to cancer treatments (such as chemotherapy and radiation), hostile ambushes in economics and warfare. We are interested in the behavior of such a process about a fixed threshold. It presents an analytic challenge, because of the arbitrary nature of random marks. We target the first passage time, pre-first passage time, the status of the associated continuous time parameter process between these two epochs, and the status of the process upon these two epochs. A joint functional of these stochastic quantities is investigated in the transient mode. (Received September 27, 2017)