1048-60-326 **Ilie Grigorescu** (igrigore@math.miami.edu), Department of Mathematics, University of Miami, Coral Gables, FL 33124, and **Min Kang*** (kang@math.ncsu.edu), Department of Mathematics, North Carolina State University, Raleigh, NC 27695. *Limit Theorems for Branching Diffusive Particles with Catalyst on the Boundary.*

We consider evolution of a large system of branching particles following diffusions on a bounded domain D in $\mathbf{R}^n$ where the branching mechanism is triggered by catalyst (hard obstacle) on the boundary ∂D of the domain. When a particle in the domain reaches the boundary ∂D, it is killed and one of the remaining particles in D is chosen under a probability law and splits into two independent particles then they continue with diffusion. The limiting behavior of the empirical distribution and a tagged particle under scaling will be discussed. Further discussions on propagation of chaos (limiting behavior of the joint law of any finite sub-system under scaling), a connection to Doeblin theorem, large deviation of the system and the law of the survival particles will follow, if time permits. (Received February 10, 2009)