1025-37-62 **Hiroki Sumi*** (sumi@math.sci.osaka-u.ac.jp), 1-1 Machikaneyama, Toyonaka, Osaka 560-0043, Japan. *Random dynamics of polynomials and singular functions in the complex plane.*

We consider the dynamics of polynomial semigroups (semigroups generated by polynomial maps) and the random dynamics of polynomials on the complex plane. We show that for any two components of the Julia set of a polynomial semigroup with bounded planar postcritical set, one of them surrounds the other. Applying this, we consider the following: Let τ be a Borel probability measure in the space $\{g \in \mathbb{C}[z] \mid \deg(g) \geq 2\}$. We consider the i. i. d. random dynamics on $\hat{\mathbb{C}}$ such that at every step we choose a polynomial according to τ. Let $T_\infty(z)$ be the probability of tending to $\infty \in \hat{\mathbb{C}}$ starting with the initial value $z \in \hat{\mathbb{C}}$ and let G_τ be the polynomial semigroup generated by the support of τ. Under some condition, we show that (1) T_∞ is locally constant on the Fatou set of G_τ, (2) $T_\infty : \hat{\mathbb{C}} \to [0,1]$ is a continuous function on $\hat{\mathbb{C}}$, and (3) If J_1, J_2 are two components of the Julia set of G_τ such that J_2 surrounds J_1, then $\max_{z \in J_1} T_\infty(z) \leq \min_{z \in J_2} T_\infty(z)$. Hence T_∞ is similar to the devil's staircase function. (Received January 12, 2007)