1098-60-284 **Weining Kang*** (wkang@umbc.edu), Department of Mathematics and Statistics, University of Maryland, 1000 Hilltop Circle, Baltimore, MD 21250, and **Kavita Ramanan** (kavita_ramanan@brown.edu), Department of Applied Mathematics, Brown University, Providence, RI 02912. *Characterization of stationary distributions of reflected diffusions.*

We consider a reflected diffusion associated with a domain G, a reflection vector field $d(\cdot)$ on ∂G, and drift and dispersion coefficients $b(\cdot)$ and $\sigma(\cdot)$. Let $\mathcal{L}$ be the usual second-order elliptic operator. Under mild assumptions on the coefficients and reflection vector field, we show that when the associated submartingale problem is well posed, a probability measure π on $\bar{G}$ with $\pi(\partial G) = 0$ is a stationary distribution for the reflected diffusion if and only if $\int_{\bar{G}} \mathcal{L}f(x)\pi(dx) \leq 0$ for every f in a certain class of test functions. The assumptions are verified for a large class of obliquely reflected diffusions in piecewise smooth domains, including those that are not semimartingales. In the cases of bounded smooth domains and polyhedral domains that satisfy a skew-symmetry condition, we show that the reflected diffusion has invariant density of Gibbs form if a certain skew-transform of the drift is conservative and of class $\mathcal{C}^1$ and the covariance matrix is non-degenerate. Finally, under non-degeneracy condition on the covariance matrix, a boundary property is shown that implies that the condition $\pi(\partial G) = 0$ is necessary for π to be a stationary distribution. (Received January 28, 2014)