1086-35-110   **Jongkeun Choi*** (`cjg@yonsei.ac.kr`), Department of Mathematics, Yonsei University, Seoul 120-749, South Korea, and **Seick Kim** (`kimseick@yonsei.ac.kr`), Department of Mathematics, Yonsei University, Seoul 120-749, South Korea. *Green's function for second order parabolic systems with Neumann boundary condition.*

We study the Neumann Green's function for second order parabolic systems in divergence form with time-dependent measurable coefficients in a cylindrical domain $\mathcal{Q} = \Omega \times (-\infty, \infty)$, where $\Omega \subset \mathbb{R}^n$ is an open connected set such that a multiplicative Sobolev embedding inequality holds there. Such a domain includes, for example, a bounded Sobolev extension domain, a special Lipschitz domain, and an unbounded domain with compact Lipschitz boundary. We construct the Neumann Green's function in $\mathcal{Q}$ under the assumption that weak solutions of the systems satisfy an interior Hölder continuity estimate. We also establish global Gaussian bounds for Neumann Green's function under an additional assumption that weak solutions with zero Neumann data satisfy a local boundedness estimate. (Received July 20, 2012)