1067-60-974 **Fariborz Asadian*** (asadianf@fvsu.edu), Department of Mathematics & Computer Science, Fort Valley State University, 1005 State University Drive, Fort Valley, GA 31088. *Differentiability Properties of Measures Generated by Solutions of Semilinear Stochastic Differential Equations.*

We employ the Girsanov Theorem to investigate smoothness properties of the measures generated by the solutions of semilinear stochastic differential equations of the type $d\xi(t) = [A\xi(t) + \sigma(t, \xi(t))]dt + dW(t)$, where $W(t), 0 \leq t \leq T$, is a cylindrical Wiener process in a separable Hilbert space $H$ and $A$ is an infinitesimal generator of a $C_0$-semigroup of operators on $H$. The subspaces of differentiability of these measures are characterized and the results are applied to explore the Wiener chaos decompositions of the solutions. (Received September 17, 2010)