1096-60-2253   **Valentina Staneva*** (`vals@cis.jhu.edu`) and **Laurent Younes**. *Parameter Estimation in Diffusion Processes on the Space of Shapes.*

In this work we model the deformations of 2D objects by formulating diffusion processes on the manifold of planar shapes. We introduce drift terms which are intrinsic to the shape by deriving the gradients of appropriate functions defined over the boundary of the shape. Given a sequence of observations from the path of the suggested stochastic differential equations, we propose a likelihood-ratio-based technique to estimate the missing parameters in the drift terms. We further show how to reduce the computational burden and improve the robustness of the estimators by constraining the motion of the shapes to a lower-dimensional submanifold equipped with a sub-Riemannian metric. (Received September 17, 2013)