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Edward C Waymire* (waymire@math.oregonstate.edu), Department of Mathematics, Oregon State University, Corvallis, OR 97331, and **Thilanka A Appuhamillage, Vrushali A Bokil, Enrique A Thomann** and **Brian D Wood**. *Skew Diffusion in Highly Heterogeneous Environments*.

Skew diffusion models refer to stochastic processes whose infinitesimal generators are second order advection-dispersion elliptic operators having piecewise constant coefficients. Such processes arise naturally in connection with macroscopic mass balance and flux laws in highly heterogeneous environments. We shall present some applications of skew diffusion to explain some recent results of laboratory experiments and/or field observations pertaining to various types of interfacial behavior reported in the environmental and ecological sciences. (Received August 06, 2010)