1067-46-610 **Yoann N. Dabrowski*** (`yoann@math.ucla.edu`). *A non-commutative Path Space approach to stationary free Stochastic Differential Equations.*

By defining tracial states on a non-commutative analog of a path space, we construct Markov dilations of certain conservative completely Markov semigroups on finite von Neumann algebras, including all symmetric semigroups. For well chosen semigroups, for instance with generator any divergence form operator associated to a derivation valued in the coarse correspondence, those dilations give rise to stationary solutions of certain free SDEs previously considered by D. Shlyakhtenko.

We also briefly explain two applications : a non-commutative Talagrand's inequality for non-microstate free entropy and the combination of our dilation results with techniques of Popa-Ozawa and Peterson giving the proof that the von Neumann algebra of any finitely generated group with complete metric approximation property and positive first L^2 betti number has no Cartan subalgebras. (Received September 10, 2010)