Defense of the Doctoral Dissertation

Department of Mathematics

"Support of the Brown Measure of free multiplicative Brownian motions freely convoluted with positive elements and its three-parameter family"

University of Notre Dame
College of Science

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Tuesday, March 19, 2024
Time: 1:00 PM
Location: 229 Hayes-Healy Bldg.

Examination Committee:
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Abstract:

We study a family of free multiplicative Brownian motions $b_{s,\tau}$ parameterized by a real variance s and a complex covariance τ. We compute a support of the Brown measure $\mu_{s,\tau}$ of $hb_{s,\tau}$, where h is a positive element freely independent of $b_{s,\tau}$. We find that, in the initial case $\tau = s$, outside of the region Δ_s the Brown measure $\mu_{s,s} = \mu\{0\}\delta_0$. Then for the general τ case, the support $D_{s,\tau}$ is the complement of the set obtained by mapping Δ_s^c under $f_{s-\tau}$ and outside $D_{s,\tau}$ the Brown measure $\mu_{s,\tau}$ is also $\mu\{0\}\delta_0$.