Probabilistic Operator Algebra Seminar

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April 21 **Alexander Glickfield**, Indiana University, Bloomington.

Title: *The Quasicentral Modulus for a New Class of Operators*

Let τ be an n-tuple of commuting self-adjoint operators on a separable Hilbert space, and let $\mathcal{J}$ be a symmetrically normed ideal. It is known that the quasicentral modulus $k_{\mathcal{J}}(\tau) = 0$ precisely when there exists an n-tuple $\kappa \in (\mathcal{J})^n$ so that $\tau + \kappa$ is unitarily equivalent to a diagonal n-tuple. If m_τ is the multiplicity function for τ and H_p is the p dimensional Hausdorff measure, Voiculescu showed that there exists a class of n-tuples with joint-spectra contained in self-similar fractal of dimension p so that the quasicentral modulus $k_p^-(\tau)$ associated to the Lorentz-$(p,1)$ ideals is given by $(k_p^-(\tau))^p = C \int_{\sigma(\tau)} m_\tau(x) dH_f(x)$ for some $C > 0$. We show that, given a gauge function f with some regularity conditions, there exists $s > 0$ and a pair $(\mathcal{J}, H_f)$ consisting of a normed ideal and a measure so that there is a class of n-tuple of operators where $(k_{\mathcal{J}}(\tau))^s = C \int_{\sigma(\tau)} m_\tau(X) dH_f(x)$ for some $C > 0$.