

Probabilistic Operator Algebra Seminar

Organizer: Dan Virgil Voiculescu

Monday, 9:00–10:30 am, to attend via Zoom email David Jekel (djekel@uottawa.ca) remotely

Oct 5 **Ben Hayes**, University of Virginia

On the generator problem for W^ -bundles*

We give an explicit example of a W^* -bundle M over a compact, metrizable space K , which has each fiber M_p a II_1 -factor with separable predual, and which satisfies the following negation of the generator problem : given any finite family $a_1, \dots, a_n \in M$ of continuous sections, there is a $p \in K$ (depending upon that family) so that $a_{1,p}, \dots, a_{n,p}$ together with N_p do not generate M_p as a von Neumann algebra. More generally, if N is a sub-bundle of M with the property that each fiber is hyperfinite, or has a Cartan, or is generated by two commuting diffuse subalgebras, or has diffuse central sequence algebra, or is generated by a single sequential commutation orbit, then given any finite family $a_1, \dots, a_n \in M$ of continuous sections, there is a $p \in K$ (depending upon that family) so that $a_{1,p}, \dots, a_{n,p}$ together with N_p do not generate M_p . We discuss implications for the generator problem for von Neumann algebras: e.g. there is no "continuous" way to take countably many generators for a tracial von Neumann algebra with separable predual and produce a single generator, at least if such a procedure works for all von Neumann algebras simultaneously.