Analysis Seminar

“Finite Free Probability”

By

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Abstract: **Free probability, introduced by Voiculescu in the 1980's is a powerful tool to study asymptotic properties of natural random matrix ensembles. One major drawback though is that it is defined in the setting of von Neumann algebras and as such 'free random variables' do not exist in finite dimensions. This makes (as I will explain) Free probability inapplicable when studying non-asymptotic properties of random matrices. In 2015, Adam Marcus introduced a new notion of 'finite freeness' using certain natural convolutions on univariate polynomials and showed that this yields Voiculescu's free probability as a limit. In this talk, after introducing this area, I will list several open problems and present some results of mine on a multivariate version of this, something that is needed for applications. The talk will be self-contained. No knowledge of von Neumann algebras, free probability or random matrices will be assumed.**

Date: Tuesday, April 17, 2018

Time: 16:00-17:00

Place: Mathematics Seminar Room, SA – 141

Tea and cookies will be served before the seminar.