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*Diagrammatic techniques for real and quaternionic matrices: finite case and asymptotics*

The diagrammatic approaches to the computation of matrix integrals, in particular matrix cumulants, provide a useful tool for the multi-matrix case which appears in contexts such as free probability. I will discuss how this approach may be applied in the real and quaternionic case. I will look at matrices of finite size as well as asymptotics, and how these are related to cumulants in freeness and higher-order freeness.