On negative spectral moments using asymptotic freeness of matrices

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Abstract

There is a number of matrices that are proven to be asymptotically free. For such matrices additive properties of R-transform (free cumulant generation function) can be used to derive number of results related to negative spectral moments. Some particular matrix polynomials will be considered with the special interest in polynomials in Wishart matrices. Relation between the spectral moment generating function of matrix and its inverse and closed form expression for R-transform of Inverse Wishart matrix will be given. The talk will be illustrated with comparison of theoretical and simulations results.

Keywords

Negative moments, Wishart matrix, Trace, Freeness, R-transform.

References

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