On the Dirichlet distribution on symmetric matrices

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Abstract : We extend to the Dirichlet distribution on symmetric matrices two remarkable characterizations of the real Dirichlet distribution. We then introduce a generalization of the matrix Dirichlet distribution which represents the multivariate version of the Connor and Mosimann generalized real Dirichlet distribution, and we give some properties of this generalized distribution. We also introduce the Riesz-Dirichlet distribution as an extension of the Wishart-Dirichlet distribution, and we show that some of its projections related to the Pierce decomposition are also Dirichlet.