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## Matrix Models for Beta Ensembles

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This paper constructs tridiagonal random matrix models for general ( $\beta > 0$ )  $\beta$ -Hermite (Gaussian) and  $\beta$ -Laguerre (Wishart) ensembles. These generalize the well-known Gaussian and Wishart models for  $\beta = 1, 2, 4$ . Furthermore, in the cases of the  $\beta$ -Laguerre ensembles, we eliminate the exponent quantization present in the previously known models.

We further discuss applications for the new matrix models, and present some open problems.

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