Hyperpfaffian descriptions of $\beta$-ensembles when $\beta$ is a perfect square.

Preliminary report.

We use combinatorial identities in the shuffle and exterior algebra to present hyperpfaffian formulations for the partition functions of $\beta$-ensembles with arbitrary probability measure, when $\beta$ is a square integer. This is an analogue of the de Bruijn integral identities for the $\beta = 1$ and $\beta = 4$ ensembles of Hermitian matrices in random matrix theory. (Received September 17, 2019)