

DEFORMED SMALLEST SINGULAR VALUE LAWS

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We characterize the limiting smallest eigenvalue distributions for sample covariance type matrices drawn from a spiked population in terms of random integral operators. From here we derive partial differential equations satisfied by the corresponding distribution functions. We also show that, under a natural limit, these spiked "hard edge" laws degenerate to the critically spiked Tracy-Widom laws of basic importance in mathematical statistics. As a final application we derive a dynamic characterization of the Wishart distribution (which can be viewed as a Dufresne identity for matrix processes).

Joint work with Jose Ramirez (Universidad de Costa Rica) and Benedek Valko (University of Wisconsin - Madison).