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365 5th Ave, New York, NY 10016. *Coulomb Plasma on a Singular Surface*.

Motivated by the connection to the fractional quantum Hall (FQH) effect, we study the 2D Coulomb plasma on a surface with curvature singularities. Employing a large N limit, we compute the dependence of the partition function on the complex structure moduli of the surface. The resulting variational formula is controlled by exact sum rules, which we find using a Ward identity (aka loop equation). Despite the fast decay of density correlations in the screening phase of the plasma, we find that geometric singularities exhibit power law correlations, indicating the emergence of conformal symmetry. As conformal primaries, the singularities are characterized by a conformal dimension, which is fixed by a sum rule. In the FQH setting, the conformal dimension corresponds to an intrinsic angular momentum of a curvature singularity, while the power law correlations encode the Berry phase picked up by the FQH wave function upon braiding singularities. (Received February 12, 2018)