

Abstract Submitted
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Bjerrum Pairing Correlations at Charged Interfaces¹ ALEX TRAVESSET, DAVID VAKNIN, Iowa State University and Ames Lab — Electrostatic correlations play a fundamental role in aqueous solutions. In this letter, we identify transverse and lateral correlations as two mutually exclusive regimes. We show that the transverse regime leads to binding by generalization of the Bjerrum pair formation theory and point out that this purely electrostatic correlation becomes dominant for strongly charged interfaces. We compare our theoretical predictions with different experiments on charged membranes and Langmuir monolayers and find good agreements. We contrast our approach with existing theories in the strong coupling limit and on charged modulated interfaces and discuss different scenarios leading to charge reversal and equal-charge attraction by macro-ions.

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