

Abstract Submitted  
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**Phase diagrams of effective charge and size of an isolated polyelectrolyte chain and gels<sup>1</sup>** ARINDAM KUNDAGRAMI, MURUGAPPAN MUTHUKUMAR, Polymer Science and Engineering, University of Massachusetts, Amherst — We consider an isolated polyelectrolyte chain and charged gels under poor solvent conditions and calculate the phase diagrams for the effective charge and size of the respective systems as functions of physical parameters such as temperature and salt concentration. Phase boundaries and the critical point for the first order collapse transition - induced cooperatively by counterion adsorption and solvent quality - are calculated self-consistently in terms of both the effective charge and the size of the chain with arbitrary ionizability.

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