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Polyelectrolyte Dendrimer Conformations from Mean Field Theory THOMAS LEWIS, VENKAT GANESAN, University of Texas at Austin — The unique architecture of dendrimers has led to research in a wide array of applications including drug delivery. It is widely accepted that non-charged dendrimers exhibit a dense-core radial density profile in order to balance entropic and excluded volume forces. The use of polyelectrolyte dendrimers in drug delivery has been suggested as a way to attain internal cavities within the dendrimer, which can be tuned by varying salt concentration and pH of the solution. In order to gain insight into the equilibrium behavior of both annealed and quenched polyelectrolyte dendrimers, we have developed and numerically solved a Self-Consistent Field Theory approach for charged dendrimer molecules in an implicit solvent. We then use this method to examine the effects of pH, salt concentration, and generation number upon the conformations of these molecules.

Thomas Lewis
University of Texas at Austin

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