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Evolution of growth modes for polyelectrolyte bundles G.H. LAI, OLENA V. ZRIBI, University of Illinois at Urbana-Champaign, Dept. of Physics, GOLESTANIAN RAMIN, University of Sheffield, Dept. of Physics, GERARD C.L. WONG, University of Illinois at Urbana-Champaign, Dept. of Physics, Dept. of Materials Science and Engineering, Dept. of Bioengineering — F-actin is a prototypical 'hard rod' polyelectrolyte, with a charge density of $\sim$1e/2.5Å and a persistence length of $\sim$5-10 μm. In the presence of multivalent ions, F-actin can condense into close-packed bundles. In this work, we use fluorescence microscopy to study the detailed growth mode of such bundles, and show how it evolves as a function of salt concentration. Preliminary results indicate that at sufficiently high salt concentrations, the bundle width is relatively insensitive to salt concentration. Moreover, the growth mode of the system changes as a function of salt concentration, varying from lateral growth (which increases the bundle width) to longitudinal growth (which increases the bundle length).

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