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Self-assembly between DNA and anionic membranes HONGJUN LIANG, Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, DANIEL HARRIES, National Institutes of Health, GERARD WONG, Dept. of Materials Science and Engineering, Physics and Bioengineering, University of Illinois at Urbana-Champaign — The self-assembly between anionic membranes and anionic polyelectrolytes has been investigated using synchrotron small angle x-ray scattering and confocal microscopy. Like-charged DNA rods and lipid membranes can condense into complexes with a rich polymorphism of structures in the presence of divalent cations, since cations can in principle generate attractions between rods and membranes, membranes and membranes, and rods and rods. The structures of these complexes have been examined as a function of the charge membrane charge density and the global counterion concentration. Lamellar and inverted hexagonal phases can be formed, as can phases with no direct analog in DNA-cationic membrane systems. The competition between electrostatic and membrane elastic properties in the determination of phase stability will be discussed.

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