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Simulations of Triblock Copolymer Interactions with Biomimetic Membranes SHASHISHEKAR ADIGA, PETER ZAPOL, MILLICENT FIRESTONE, Materials Science Division, Argonne National Laboratory, MOLECULAR MATERIALS TEAM — Association of amphiphilic triblock copolymers with lipid membranes results in versatile novel materials with enormous potential in many areas of bionanotechnology. The molecular architecture and concentration of block copolymers along with environmental variables such as temperature and pH provide means to tune these structures for desired applications and also allow for designing signal-responsive materials. Understanding interaction between block copolymers and lipid bilayers is crucial for applications in nanomedicine. Monte Carlo simulations are used to explore the effect of molecular architecture on the mode of insertion of triblock copolymers into lipid bilayers. The results are compared with small angle X-ray scattering data.

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