Abstract Submitted
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Fluctuation effects and stability of the Fddd phase in diblock copolymer melts[1] BING MIAO, ROBERT WICKHAM, St. Francis Xavier University — Tyler and Morse recently found that an Fddd network phase is stable over a narrow region in the diblock copolymer phase diagram, within mean-field theory. However, in the weak segregation regime, where the Fddd phase is stable, it is well-known that composition fluctuations significantly modify the results of mean-field theory, including the phase diagram. We investigate the effect of composition fluctuations on the stability of the Fddd phase self-consistently at the one-loop level within the framework of the theory of Fredrickson and Helfand. The stability of the Fddd phase relative to the neighbouring lamellar, cylindrical, and gyroid phases will be discussed.

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Robert Wickham
St. Francis Xavier Univerisity

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