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Hyunjung Choi and **Yanxiang Zhao*** (yxzhao@email.gwu.edu). *Second-order stabilized semi-implicit energy stable schemes for bubble assemblies in binary and ternary systems.*

In this talk, we propose some second-order stabilized semi-implicit methods for solving the Allen-Cahn-Ohta-Kawasaki and the Allen-Cahn-Ohta-Nakazawa equations. In the numerical methods, some nonlocal linear stabilizing terms are introduced and treated implicitly with other linear terms, while other nonlinear and nonlocal terms are treated explicitly. We consider two different forms of such stabilizers and compare the difference regarding the energy stability. The spatial discretization is performed by the Fourier collocation method with FFT-based fast implementations. Numerically, we verify the second order temporal convergence rate of the proposed schemes. In both binary and ternary systems, the coarsening dynamics is visualized as bubble assemblies in hexagonal or square patterns. (Received September 21, 2021)