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Olga Stulov* (olga.stulov@gmail.com), 25 Henry W Dubois, Apt. 20, New Paltz, NY 12561,
and **Ian C Johnson, Evelyn Sander** and **Thomas Wanner**. *Stability of equilibria in one
dimension for diblock copolymer equation*. Preliminary report.

This paper demonstrates the use of the mathematical model for diblock-copolymer equilibria to obtain the solutions of the homogeneous and inhomogeneous equilibria. In order to determine the stability of the system in the time varying solution, the eigenvalues and eigenfunctions were found. The positive eigenvalues represented the unstable directions, thus allowing to study the behavior of the diblock copolymers near the equilibria. While the homogeneous equilibrium solution was found analytically, the solution of the inhomogeneous equilibrium had to be solved for numerically. The various sets of the solutions of the model were found by means of the software AUTO. These sets were then embedded in MATLAB to solve for the eigenvalues and eigenfunctions of the system. In addition, the latter were plotted for the interpretation of the results. For simplicity the model was studied in one dimension. (Received September 12, 2010)