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**Saulo I Orizaga\***, sorizaga@math.duke.edu, and **Tom Witelski**. *EFFICIENT NUMERICAL METHODS FOR THE THIN-FILM EQUATION AND CAHN-HILLIARD EQUATION WITH CONCENTRATION DEPENDENT MOBILITY*. Preliminary report.

We consider a class of splitting schemes coupled with IMEX time stepping to obtain accurate and energy-stable solutions to the thin-film equation and Cahn-Hilliard equation with variable mobility. The major advantage is that the splitting method gives a linear constant coefficient implicit component resulting in a simple implementation using pseudo-spectral discretization. The methods improve the accuracy of the original biharmonic-modified method and retain the energy-decreasing property. Numerical experiments are presented to demonstrate the performance of the proposed methods. (Received January 30, 2019)