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Ohannes Karakashian* (okarakas@utk.edu), **Jerry L Bona**, **Hongqiu Chen** and **Michael Wise**. *Finite Element Methods for a System of Dispersive Equations*.

The present study is concerned with the numerical approximation of periodic solutions of systems of Korteweg–de Vries type, coupled through their nonlinear terms. We construct, analyze and numerically validate two types of schemes that differ in their treatment of the third derivative. One approach preserves a certain important invariant of the system while the other, somewhat more standard method introduces a measure of dissipation. For both methods, we prove convergence of a semi-discrete approximation and highlight differences in the basic assumptions required for each. Numerical experiments are also conducted with the aim of ascertaining the accuracy of the two schemes when integrations are made over long time intervals. (Received January 11, 2018)