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A NEW HIGH ORDER NUMERICAL APPROACH FOR A NONLINEAR DISPERSIVE EQUATION TYPE

ASMA ROUATBI

Abstract. A linearized conservative high-order finite difference scheme for a model of nonlinear dispersive equation: the regularized long wave-Korteweg de Vries (RLW-KdV) equation is studied. The scheme is proved to be conservative, uniquely solvable, and unconditionally stable. The convergence rate is of fourth-order in space and second-order in time in the discrete L^{∞}-norm. Some numerical checks are presented to verify the theoretical results.

Institut Supérieur des Sciences Appliquées et de Technologie de Sousse, 4003 Sousse Ibn Khaldoun, Tunisia.
E-mail address: rouatbi.asma@hotmail.fr