Well-posedness of the Schrödinger-ILW system

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We consider a nonlinearly coupled Schrödinger–Intermediate Long Wave (ILW) system modeling short- and long-wave interactions. We present local and global well-posedness results for the associated initial value problem with initial data in low-regularity Sobolev spaces. The proof relies on Bourgain spaces combined with the gauge transformation introduced by Tao in his study of the Benjamin–Ono equation.