Hiroshima Mathematical Analysis Seminar No.233

Variational approach for nonlinear Schrödinger equations with derivative: Global existence

We study nonlinear Schrödinger equations with derivative. First we establish the mass condition for global existence by variational approach. Next we review the mass condition from the viewpoints of potential well theory and show that the condition is sharp in some sense. The important point of our study is to clarify the connection between the mass condition and potential well generated by the solitons. We see that the effect of the momentum plays an essential role in the arguments.

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