1171-35-194 Milena Stanislavova^{*}, mstanisl@uab.edu, and Wen Feng and Atanas Stefanov. On the Barashenkov-Bogdan-Zhanlav solitons and their stability. Preliminary report.

The Barashenkov-Bogdan-Zhanlav solitons u_{\pm} for the forced NLS/Lugiato-Lefever model on the line are considered. While the instability of u_{+} was established in the original paper, [1], the analogous question for u_{-} was only considered heuristically and numerically. We rigorously analyze the stability of u_{-} in the various regimes of the parameters. In particular, we show that u_{-} is spectrally stable for small pump strength h. Moreover, u_{-} remains spectrally stable until a pair of neutral eigenvalues of negative Krein signature hits another pair of eigenvalues, which has emanated from the edge of the continuous spectrum. After the collision, an instability is conjectured and numerically observed in previous works, [1].

References

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