

Numerical approximation to the fractional non-linear Schrödinger equation

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Abstract

In this talk, a numerical method for the fractional nonlinear Schrödinger equation (fNLS) (see e. g. [1, 3, 4] and references therein) will be introduced and analyzed. The scheme will be applied to study the dynamics of traveling soliton solutions of the cubic fNLS whose existence was recently derived in [2].

References

- [1] Hong, Y., Sire, Y., On the fractional Schrödinger equation in Sobolev spaces *Commun. Pure Appl. Anal.* 14, 2015, 22652282.
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- [3] Klein, C., Sparber, C., Markowich, P., Numerical study of fractional nonlinear Schrödinger equations, *Proc. Roy. Soc. A* 470, 2014, 20140364.
- [4] Laskin, N., Fractional Schrödinger equation, *Phys. Rev. E.*, 66, 2002, 056108.