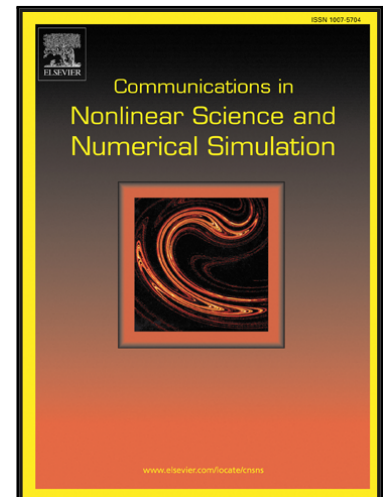


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Breathers and rogue waves in a Heisenberg ferromagnetic spin chain or an alpha helical protein

Jin-Wei Yang, Yi-Tian Gao, Chuan-Qi Su, Qi-Min Wang, Zhong-Zhou Lan

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Highlights

- Breathers and rogue waves are constructed via Darboux transformation and generalized Darboux transformation, respectively.
- The first- and second-order Akhmediev breathers and Kuznetsov-Ma solitons are presented with different values of variable coefficients, and nonlinear periodic breathers resulting from the Akhmediev breathers are studied as well.
- The first- and second-order rogue waves are presented, and we find that the rogue waves can be split into many similar components when the variable coefficients are the polynomial functions of time.

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