

Meng, Qing; He, Bin

Peakon, solitary and smooth periodic wave solutions for a modification of the $K(2,2)$ equation. (English) [Zbl 1406.35321](#)

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Summary: We consider a modification of the $K(2,2)$ equation $u_t = 2uu_{xxx} + 2ku_xu_{xx} + 2uu_x$ using the bifurcation method of dynamical systems and the method of phase portraits analysis. From dynamic point of view, some peakons, solitary, and smooth periodic waves are found and their exact parametric representations are presented. Also, the coexistence of peakon and solitary wave solutions is investigated.

MSC:

- [35Q51](#) Soliton equations
- [35B10](#) Periodic solutions to PDEs
- [35B32](#) Bifurcations in context of PDEs
- [35C08](#) Soliton solutions

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