

Integrable discretizations for the short wave model of the Camassa-Holm equation

Bao-Feng Feng, Ken-ichi Maruno, Yasuhiro Ohta

(Submitted on 19 Feb 2010)

The link between the short wave model of the Camassa-Holm equation (SCHE) and bilinear equations of the two-dimensional Toda lattice (2DTL) is clarified. The parametric form of N-cuspon solution of the SCHE in Casorati determinant is then given. Based on the above finding, integrable semi-discrete and full-discrete analogues of the SCHE are constructed. The determinant solutions of both semi-discrete and fully discrete analogues of the SCHE are also presented.

Subjects: **Exactly Solvable and Integrable Systems (nlin.SI)**; Pattern Formation and Solitons (nlin.PS)

Cite as: [arXiv:1002.3649v1](#) [nlin.SI]

Submission history

From: Kenichi Maruno [[view email](#)]

[v1] Fri, 19 Feb 2010 00:47:01 GMT (14kb)

[Which authors of this paper are endorsers?](#)

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

[nlin.SI](#)

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1002](#)

Change to browse by:

[nlin](#)

[nlin.PS](#)

References & Citations

- [CiteBase](#)

Bookmark([what is this?](#))

[CiteULike logo](#)

[Connotea logo](#)

[BibSonomy logo](#)

[Mendeley logo](#)

[Facebook logo](#)

[del.icio.us logo](#)

[Digg logo](#)

[Reddit logo](#)