

Publications, Preprints and Theses

Wolf-Patrick Düll

Preprints

- [1] W.-P. Düll, B. Hilder, G. Schneider. Analysis of the embedded cell method in 2D for the numerical homogenization of metal-ceramic composite materials. Preprint, Universität Stuttgart, 2017, contains parts of arXiv:1609.07644

Manuscripts Submitted for Publication

- [2] W.-P. Düll, B. Hilder, G. Schneider. Analysis of the embedded cell method in 1D for the numerical homogenization of metal-ceramic composite materials. Submitted to *J. Appl. Anal.*, 2016, parts of arXiv:1609.07644

Articles in Refereed Journals

- [3] R. Bauer, W.-P. Düll, G. Schneider. The KdV, the Burgers, and the Whitham limit for a spatially periodic Boussinesq model. *Proc. Roy. Soc. Edinburgh Sect. A*, in press, 2017, arXiv:1608.05632v2
- [4] W.-P. Düll, M. Heß. Existence of long time solutions and validity of the Nonlinear Schrödinger approximation for a quasilinear dispersive equation. *J. Differential Equations* **264** (2018), no. 4, 2598-2632.
- [5] W.-P. Düll. On the mathematical description of time-dependent surface water waves. *Jahresber. Dtsch. Math.-Ver.* (2017), <http://dx.doi.org/10.1365/s13291-017-0173-6>
- [6] W.-P. Düll. Justification of the Nonlinear Schrödinger approximation for a quasilinear Klein-Gordon equation. *Comm. Math. Phys.* **355** (2017), no. 3, 1189-1207.
- [7] W.-P. Düll, K. Sanei Kashani, G. Schneider. The validity of Whitham's approximation for a Klein-Gordon-Boussinesq model. *SIAM J. Math. Anal.* **48** (2016), no. 6, 4311-4334.
- [8] W.-P. Düll, K. Sanei Kashani, G. Schneider, D. Zimmermann. Attractivity of the Ginzburg-Landau mode distribution for a pattern forming system with marginally stable long modes. *J. Differential Equations* **261** (2016), no.1, 319-339.
- [9] W.-P. Düll, G. Schneider, C. E. Wayne. Justification of the Nonlinear Schrödinger equation for the evolution of gravity driven 2D surface water waves in a canal of finite depth. *Arch. Ration. Mech. Anal.* **220** (2016), no. 2, 543-602.

- [10] W.-P. Düll, A. Hermann, G. Schneider, D. Zimmermann. Justification of the 2D NLS equation - Quadratic resonances do not matter in case of analytic initial conditions. *J. Math. Anal. Appl.* **436** (2016), no. 2, 847-867.
- [11] M. Chirilus-Bruckner, W.-P. Düll, G. Schneider. NLS approximation of time oscillatory long waves for equations with quasilinear quadratic terms. *Math. Nachr.* **288** (2015), no. 2-3, 158-166.
- [12] W.-P. Düll, A. Kirchhoff, G. Schneider. The existence of bifurcating invariant tori in a spatially extended reaction-diffusion-convection system with spatially localized amplification. *J. Nonlinear Sci.* **24** (2014), no. 2, 305-358.
- [13] M. Chirilus-Bruckner, W.-P. Düll, G. Schneider. Validity of the KdV equation for the modulation of periodic traveling waves in the NLS equation. *J. Math. Anal. Appl.* **414** (2014), no. 1, 166-175.
- [14] W.-P. Düll. Validity of the Cahn-Hilliard approximation for modulations of slightly unstable pattern in the real Ginzburg-Landau equation. *Nonlinear Anal. Real World Appl.* **14** (2013), no. 6, 2204-2211.
- [15] W.-P. Düll. Validity of the Korteweg-de Vries Approximation for the Two-Dimensional Water Wave Problem in the Arc Length Formulation. *Comm. Pure Appl. Math.* **65** (2012), no. 3, 381-429.
- [16] W.-P. Düll. A waiting time phenomenon for modulations of pattern in reaction-diffusion systems. *Z. Angew. Math. Phys.* **63** (2012), no. 1, 1-23.
- [17] W.-P. Düll, G. Schneider, H. Uecker. Local existence and uniqueness of solutions of the weak electrolyte model describing electro-convection in nematic liquid crystals. *ZAMM Z. Angew. Math. Mech.* **91** (2011), no. 3, 247-256.
- [18] W.-P. Düll, G. Schneider. Validity of Whitham's equations for the modulation of periodic traveling waves in the NLS equation. *J. Nonlinear Sci.* **19** (2009), no. 5, 453-466.
- [19] W.-P. Düll, G. Schneider. A waiting time phenomenon in pattern forming systems. *SIAM J. Math. Anal.* **41** (2009), no. 1, 415-433.
- [20] W.-P. Düll. The validity of phase diffusion equations and of Cahn-Hilliard equations for the modulation of pattern in reaction-diffusion systems. *J. Differential Equations* **239** (2007), no. 1, 72-98.
- [21] W.-P. Düll, G. Schneider. Justification of the nonlinear Schrödinger equation for a resonant Boussinesq model. *Indiana Univ. Math. J.* **55** (2006), no. 6, 1813-1834.
- [22] W.-P. Düll, G. Schneider. Validity of the resonant four wave interaction system in a model for surface water waves on an infinite deep sea. *Nonlinear Anal. Real World Appl.* **7** (2006), no. 5, 1243-1254.
- [23] W.-P. Düll. Some qualitative properties of solutions to a pseudoparabolic equation modeling solvent uptake in polymeric solids. *Comm. Partial Differential Equations* **31** (2006), no. 7-9, 1117-1138.

Proceedings

- [24] W.-P. Düll. Validity of the KdV and the NLS approximation of the water wave problem. *Oberwolfach Report* **12** (2015), no. 2, 1041-1044.

Theses

- [25] W.-P. Düll. Justification of Approximation Equations for Pattern Forming Systems and for Water Waves. Habilitationsschrift (cumulative, contains [15]-[22]), Universität Stuttgart, 2011.
- [26] W.-P. Düll. Theorie einer pseudoparabolischen partiellen Differentialgleichung zur Modellierung der Lösemittelaufnahme in Polymerfeststoffen. Dissertation, Rheinische Friedrich-Wilhelms-Universität Bonn, *Bonner Mathematische Schriften* **365** (2004).
- [27] W.-P. Düll. Asymptotisches Verhalten von Singularitäten einer geometrischen Evolutionsgleichung. Diplomarbeit, Eberhard-Karls-Universität Tübingen, 1999.