Mohmed-Amin Ghorbel

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Current position :

Associate Professor

Researcher in Laboratory of "Stability and control of systems, nonlinear PDEs", LR 13 ES 21.

Research interests :

Hamilton-Jacobi equation
viscosity solution
trafic model
traveling wave
Homogenization
dislocation dynamics

List of publications :

1. Existence and uniqueness of traveling waves for accelerated Frenkel-Kontorova model, (with N. Forcadel), **Journal of Dynamics and Differential Equations** vol. 26, no. 4, (2014), 1133-1169.

2. Existence and non-existence of semi-discrete shocks for a car-following model in trafic flow, (with R. Monneau), **SIAM Journal on Mathematical Analysis** vol. 46, no. 6, (2014), 3612-3639.

3. Well-posedness and numerical analysis of a one-dimensional non-local transport equation modelling dislocations dynamics, (with R. Monneau), **Mathematics of Computation** vol. 79, no. 271, (2010), 1535-1564.

4. A Numerical Study for the Homogenization of One-Dimensional Models describing the Motion of Dislocations, (with P. Hoch and R. Monneau), **Int. J. of Computing Science and Mathematics** 2 (1-2) (2008), 28-52.

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5. Equation d'Hamilton-Jacobi non-locale modelisant la dynamique des dislocations, (with R. Monneau), **Acts of 2nd TAM-TAM** (Trends in Applied Mathematics in Tunisia, Algeria, Morocco), Ed. ENIT-LAMSIN, 322-328, April 2005.

6. Comportement mecanique par homogeneisation de la dynamique des disclocations, (with M. El Rhabi and R. Monneau), Proceedings of conference MECAMAT - Aussois 2006, Ecole de Mécanique des Materiaux - Aussois 2006, France.

Work in progress :

1. Newton-like method for the homogenization of Frenkel-Kontorova model, with N. Forcadel.

2. Existence of traveling waves for accelerated Frenkel-Kontorova model in the monostable case.

3. Construction of a plane wave like solution for a wave equation, with N. Forcadel.

4. Numerical homogenization of Hamilton-Jacobi equations on a bi-dimensional network: application to traffic, with G. Costeseque and R. Monneau.

ORGANIZATION OF SCHOOLS AND CONFERENCES:

Nonlinear analysis days ,october 22-24, 2015, Sfax.

Workshop on nonlinear analysis and applications, may 25-28, 2016, Monastir.

Workshop on nonlinear analysis and applications , july 1-4, 2017, Monastir.

International Conference on Advances in Applied Mathematics (ICAAM) since 2013, Hammamet.

Workshop on nonlinear analysis and applications, june 17-21, 2018, Sousse