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Joint Geometric Analysis Seminar

Various results for singular perturbation problems of diffused interface

Professor Yoshihiro Tonegawa
Tokyo Institute of Technology

Abstract: The Modica-Mortola (or Allen-Cahn) energy has been widely used in mathematical modeling to represent the hypersurface area of thin diffused interface region. The usefulness does not stop at the modeling, on the other hand. The energy is equipped with a rich hidden structure and one can establish sharp and rigorous results in the framework of geometric measure theory on its singular perturbation limit under various assumptions. I give an overview on results in this direction. Ref. (1) Y.Tonegawa, N. Wickramasekera, Stable phase interfaces in the van der Waals-Cahn-Hilliard theory, J. Reine Angew. Math. 668 (2012), 191-210, (2)K. Takasao, Y. Tonegawa, Existence and regularity of mean curvature flow with transport term in higher dimensions, Math. Ann. 364, (2016), 857-935,(3) Y. Tonegawa, A diffused interface whose chemical potential lies in Sobolev spaces, Ann. Sc. Norm. Sup. Pisa 4 (2005) 487-510.

Date: 16 March 2018 (Friday)
Time: 10:30 a.m. – 11:30 a.m.
Venue: Room 502A, Academic Building No.1
             The Chinese University of Hong Kong, Shatin

All are Welcome!