



Meiji University Global COE Program 33th Mathematical Sciences based on



Modeling, Analysis and Simulation seminar

Date: December 2, 2010, 16:30~18:00

Location: Meiji Univ. Ikuta Campus, Build 2 Annex A, Room A207

Hisa-Aki Tanaka (UEC)

Title : Design of optimal entrainment of a weakly forced oscillator

Abstract : A theory for obtaining waveform for the effective entrainment of a weakly forced oscillator is presented. Phase model analysis is combined with calculus of variation to derive a waveform with which entrainment of an oscillator is achieved with minimum power forcing signal. Optimal waveforms are calculated from the phase response curve and a solution to a balancing condition. The theory is tested in chemical entrainment experiments in which oscillations close to and further away from a Hopf bifurcation exhibited sinusoidal and higher harmonic nontrivial optimal waveforms, respectively.

Everyone is welcome to attend the MAS seminar.

Meiji institute for Advanced Study of Mathematical Science (<http://www.mims.meiji.ac.jp>)

(Organizers: M. Mimura, D. Ueyama, Y. Wakano, K. Ikeda and S.Kinoshita)

MAS seminar is partly supported by Meiji University Global COE program “Formation and Development of Mathematical Sciences Based on Modeling and Analysis” (<http://goe.mims.meiji.ac.jp/>), the Grant-in-Aid for Scientific Research (S), “Mathematical Theory of Nonlinear-Non-equilibrium Reaction-Diffusion Systems” by M. Mimura (<http://nnrds.math.meiji.ac.jp/>).



Access: 10 minutes on foot from Ikuta St. Odakyu line,
Or 10 minutes by bus No. 13「明治大学正門前」, get off at the last stop.
See http://www.meiji.ac.jp/koho/campus_guide/ for details.