

Workshop on "Confined Quantum Systems: Modeling, Analysis and Computation"**Location: WPI Seminar Room C714 Mon, 04. Feb (Opening: 10:00) - Fri, 08. Feb 13**

Organisers : Weizhu Bao (NU Singapore), N.J. Mauser (WPI c/o U. Wien)

Monday, February 4, 2013Morning Session

09:00 – 10:00 Registration

10:00 – 10:15 Opening remarks
Welcome by WPI Director (Norbert Mauser)10:15 – 11:05 **Dieter Jaksch:** *Magnetic monopoles and synthetic spin-orbit coupling in Rydberg macrodimers*

11:05 – 11:35 Coffee break

11:35 – 12:25 **Martin Bruderer:** *Impurities immersed in Bose-Einstein condensates*

12:30 – 02:30 Lunch

Afternoon Session02:30 – 03:20 **Thorsten Schumm (AtomInstitut):** *Non-linear atom optics with Bose-Einstein condensates*

03:20 – 03:50 Coffee break

03:50 – 04:40 **Jörg Schmiedmayer (Atominstitut):** *Relaxation and prethermalization in a many body quantum system*04:40 – 05:10 **Panel Discussion** (Moderated by Norbert Mauser)
“What is a low dimensional quantum system?”

Tuesday, February 5, 2013

Morning Session

09:00 – 09:30 Registration

09:30 – 10:20 Jean-Claude Saut: *Dispersive blow-up for Schrödinger type equations*

10:20 – 10:50 Coffee break

10:50 – 11:40 **Florian Mehats:** *High order averaging for the Gross-Pitaevskii equation*

11:40 – 12:30 **Philippe Chartier:** Talk title

12:30 – 02:30 Lunch

Afternoon Session

02:30 – 03:20 **Han Pu:** *Ground state and expansion dynamics of a one-dimensional Fermi gas*

03:20 – 03:50 Coffee break

03:50 – 04:40 **I-Liang Chern:** *Exploring Ground States and Excited States of Spin-1 Bose-Einstein Condensates with/without external magnetic field*

04:40 – 05:30 **Yong Zhang:** *Dimension reduction of the Schrödinger equation with Coulomb and anisotropic confining potentials*

Wednesday, February 6, 2013

Morning Session

09:00 – 09:30 Registration

09:30 – 10:20 Romain Duboscq: *Development of accurate and robust numerical methods for fast rotating*

10:20 – 10:50 Coffee break

10:50 – 11:40 **Mechthild Thalhammer:** *Adaptive integration methods for Gross-Pitaevskii equations: Theoretical and practical aspects*

11:40 – 12:30 **Christophe Besse:** Talk title

12:30 – 02:30 Lunch

Afternoon Session

02:30 – 03:20 **Rada Weishäupl:** *A two-component nonlinear Schrödinger system with linear coupling*

03:20 – 03:50 Coffee break

03:50 – 04:40 **Zhongyi Huang:** Talk title

04:40 – 05:30 **Benson Muite:** *Spectral methods for investigating solutions to partial differential equations*

Thursday, February 7, 2013

Morning Session

09:30 – 10:20 Peter A. Markowich: Talk title

10:20 – 10:50 Coffee break

10:50 – 11:40 **Igor Mazets (Atominstut):** *Analysis and Numerical Modeling of Ultracold Atomic Bose-Gases in Effective One-Dimensional Geometry*

11:40 – 12:30 **Othmar Koch:** *Adaptive Full Discretization of Nonlinear Schrödinger Equations*

12:30 – 02:30 Lunch

Afternoon Session

02:30 – 03:20 **Hans P. Stimming:** Talk title

03:20 – 03:50 Coffee break

03:50 – 04:40 **Mohammed Lemou:** *Uniformly accurate numerical schemes for highly oscillatory Schrödinger equation*

04:40 – 05:30 **Gilles Vilmart:** *Multi-revolution composition methods for highly oscillatory problems*

07:00 – 09:00 Social Dinner (Heurigen)

Friday, February 8, 2013

Morning Session

09:30 – 10:20 George N. Makrakis: *Uniformization by Wignerization*

10:20 – 10:50 Coffee break

10:50 – 11:40 **Francois Golse:** *On the propagation of monokinetic measures with rough momentum profiles*

11:40 – 12:30 **Claude Bardos:** *About the Vlasov-Dirac-Benney equation*

12:30 Closing Remarks