MAX–PLANCK–INSTITUT FÜR PHYSIK KOMPLEXER SYSTEME
Dresden, Germany

International seminar and workshop on

DMRG and Other Recent Advances in Numerical RG Methods

Seminar: August 24 - September 18, 1998 • Workshop: September 1 - 10, 1998

PROGRAM

Seminar (August 24 – 31)

Monday, August 24

8:45 – 9:00	**Conference Organizers** Introductory remarks
9:00 – 10:30	**Theo Costi** (Karlsruhe) Introduction to the Wilson NRG and application to dynamics of quantum impurity models – lecture I
10:30 – 11:00	**Break**
11:00 – 12:30	**Reinhard Noack** (Fribourg) Introduction to the DMRG – lecture I
16:30 – 18:00	**Miguel Angel Martin-Delgado** (Madrid) Recurrent Variational Approach to DMRG: Heisenberg and t–J Ladders – lecture I

Tuesday, August 25

9:00 – 10:30	**Theo Costi** – lecture II
10:30 – 11:00	**Break**
11:00 – 12:30	**Reinhard Noack** – lecture II
16:30 – 18:00	**Stefan Rommer** (Göteborg) Thermodynamic limit of DMRG – lecture I

Wednesday, August 26

9:00 – 10:30	**Miguel Angel Martin–Delgado** – lecture II
10:30 – 11:00	**Break**
11:00 – 12:30	**Stefan Rommer** – lecture II
14:00 – 16:00	Problem/Discussion Session I
16:30 – 18:00	**Tomotoshi Nishino** (Kobe) DMRG for classical systems – lecture I

Thursday, August 27

9:00 – 10:30	**T. Costi** – lecture III
10:30 – 11:00	**Break**
11:00 – 12:30	**Reinhard Noack** – lecture III
16:30 – 18:00	**Tao Xiang** (Cambridge) Momentum space and finite temperature DMRG methods – lecture I

Friday, August 28

9:00 – 10:30	**Tomotoshi Nishino** – lecture II
10:30 – 11:00	**Break**
11:00 – 12:30	**Miguel Angel Martin–Delgado** – lecture III
16:30 – 18:00	**Tao Xiang** – lecture II

Monday, August 31

9:00 – 10:30	**Tomotoshi Nishino** – lecture III
10:30 – 11:00	**Break**
11:00 – 12:30	**Tao Xiang** – lecture III
14:00 – 16:00	Problem/Discussion Session II
16:30 – 18:00	**Xiaoqun Wang** (Lausanne) On DMRG calculation of dynamic properties

Workshop (September 1-10)

Monday, 31 August

19:00 – 21:00	**Reception/Registration**

Tuesday, September 1

08:45 – 09:00	**Opening address**
09:00 – 10:00	**German Sierra** (Madrid) *Diagonal Ladders*
10:00 – 10:15	Discussion
10:15 – 10:45	Coffee break
10:45 – 11:45	**Steven R. White** (U.C. Irvine) *Recent Developments in DMRG*
11:45 – 12:00	Discussion
16:30 – 17:30	**Peter Schmitteckert** *1D disordered Fermi systems: From Luttinger liquid to Anderson localization*
17:30 – 17:45	Discussion

Wednesday, September 2

09:00 – 10:00	**Xiaoqun Wang** (IRMMA, Lausanne) *Spin Ladders and the Haldane Phase*
10:00 – 10:15	Discussion
10:15 – 10:45	Coffee break
10:45 – 11:45	**Erik Sorensen** (Univ. Toulouse) *Solitons in dimerized spin chains*
11:45 – 12:00	Discussion
16:30 – 17:30	**Reinhard Noack** (Univ. Fribourg) *Phase diagram and critical behavior of the Hubbard chain with n.n.n. hopping*
17:30 – 17:45	Discussion

Thursday, September 3

09:00 – 10:00	**Enrico Carlon** (Univ. Leuven) *Walls, wetting and surface criticality: new playgrounds for DMRG calculations in classical statistical mechanics*
10:00 – 10:15	Discussion
10:15 – 10:45	Coffee break
10:45 – 11:45	**Eric Jeckelmann** (Univ. Marburg) *Density matrix methods for electron-phonon systems*
11:45 – 12:00	Discussion
16:00 – 18:00	**Poster Session**

Friday, September 4

09:00 – 10:00	**S. Ramasesha** (Indian Institute of Science, Bangalore)
	Symmetrized DMRG studies of low-lying states of conjugated polymers
10:00 – 10:15	Discussion
10:15 – 10:45	Coffee break
10:45 – 11:45	**H.R. Krishnamurthy** (Indian Institute of Science, Bangalore)
	to be announced
11:45 – 12:00	Discussion
16:30 – 17:30	**William Barford** (Univ. Sheffield)
	The Electronic Structure of Conjugated 1D Semiconductors
17:30 – 17:45	Discussion

Saturday, September 5

Excursion

Monday, September 7

09:00 – 10:00	**Shaojing Qin** (Beijing)
	DMRG calculation on finite size strongly correlated systems
10:00 – 10:15	Discussion
10:15 – 10:45	Coffee break
10:45 – 11:45	**Tomotoshi Nishino** (Univ. Kobe)
	A way to extend DMRG to higher dimensional systems
11:45 – 12:00	Discussion
16:30 – 17:30	**Ingo Peschel** (F.U. Berlin)
	DMRG for non-hermitian problems and some other aspects
17:30 – 17:45	Discussion
19:00	**Conference Dinner**

Tuesday, September 8

09:00 – 10:00	**Karen Hallberg** (Centro Atomico, Bariloche)
	Specific heat of defects in the $S = 1$ chain system YBaNiO
10:00 – 10:15	Discussion
10:15 – 10:45	Coffee break
10:45 – 11:45	**Andrzej Drzewinski** (Univ. Wroclaw)
	Effects of the bulk and the surface fields on 2D Ising films at criticality
11:45 – 12:00	Discussion
16:00 – 18:00	**Contributed Talks** Thomas Pruschke, Giorgio Mazzeo, Guoping Zhang

Wednesday, September 9

09:00 – 10:00	**Tao Xiang** (Cambridge Univ.) *The applications of Transfer Matrix DMRG to spin and Hubbard chains*
10:00 – 10:15	Discussion
10:15 – 10:45	Coffee break
10:45 – 11:45	**Naokazu Shibata** (ISSP Tokyo) *An application of the finite temperature DMRG method to the one-dimensional Kondo lattice model*
11:45 – 12:00	Discussion
16:30 – 17:30	**Stefan Rommer** (Göteborg) *Thermodynamic impurity properties for spin chains using the transfer matrix DMRG*
17:30 – 17:45	Discussion

Thursday, September 10

09:00 – 10:00	**Ulrich Schollwöck** (T.U. München) *Thermodynamics of ferrimagnets*
10:00 – 10:15	Discussion
10:15 – 10:45	Coffee break
10:45 – 11:45	**Samuel Moukouri** (Univ. Sherbrooke) *Renormalization at finite temperatures: application to Hubbard and Kondo models*
11:45 – 12:00	Discussion

Seminar (September 11 – 18)

Although there is no fixed schedule for this last portion of the Seminar, informal seminars and working groups will be organized according to the interests of the participants. In addition, participants will be encouraged to work on hands-on projects with other participants and with the invited experts using the computer facilities of the Max Planck Institute.

Posters

B. Brendel *Friedel Oscillations in the Open Hubbard Chain*

R. Bulla *Application of Wilson's Numerical Renormalization Group Method to correlated lattice problems in the Dynamical Mean Field Theory*

T. Costi *Renormalization group approach to non-equilibrium transport through correlated impurity systems*

A. Gendiar and A. Surda *Incommensurate structures in ANNNI model with DMRG method*

A. Honecker *The magnetization process of antiferromagnetically coupled ferromagnetic Heisenberg chains*

A. Juozapavicius *Anisotropic XY model in a random transverse field in 1D*

A. Langari *Phase diagram of the antiferromagnetic XXZ model in the presence of an external magnetic field*

Ö. Legeza *Coupled spin chains with the density matrix renormalization method*

J. Lou *Magnetization curve of* R_2BaNiO_5 *systems below the Néel temperature*

Y. Shimizu *Numerical Renormalization Group study of non-Fermi-liquid behavior of dilute Uranium systems*

K. Tandon *Magnetization properties of some quantum spin ladder systems*

L. Valente *Quantum phase transitions in one-dimensional electron-phonon coupled systems*