

Workshop fees:

The workshop fee covering the accommodation on site (single room with shower) and full board during the workshop, the expenses of workshop materials, printing of abstracts, the conference banquet and social events:

- Regular - 400 EUR;
- PhD students presenting talk or poster - 300 EUR;
- Accompanying persons – 250 EUR.

For methods of payment and the registration form see:

<http://mtriad09.amu.edu.pl/>

International Scientific Committee:

Ljiljana Cvetković (Serbia), Heike Faßbender (Germany), Simo Puntanen (Finland), and Tomasz Szulc (Poland; Chair): tszulc@amu.edu.pl.

Organizing Committee:

Katarzyna Filipiak, Jan Hauke, Augustyn Markiewicz (Chair): amark@up.poznan.pl, Aneta Sawikowska, Anna Szczepańska, and Waldemar Wołyński.

Organizers:

- Stefan Banach International Mathematical Center, Warsaw
- Faculty of Mathematics and Computer Science, Adam Mickiewicz University, Poznań
- Institute of Socio-Economic Geography and Spatial Management, Faculty of Geography and Geology, Adam Mickiewicz University, Poznań
- Department of Mathematical and Statistical Methods, Poznań University of Life Sciences
- Polish Mathematical Society



<http://mtriad09.amu.edu.pl/>

LAST ANNOUNCEMENT

The workshop will be held on 23-27 March 2009 at Będlewo near Poznań, Poland. Będlewo is the Mathematical Research and Conference Center of the Polish Academy of Sciences, with accommodation on site; see: <http://www.impan.gov.pl/Bedlewo>.

This workshop will be the third in a series. The previous two workshops were held in Będlewo in 2005 and 2007. The aim is to bring together researchers sharing an interest in a variety of aspects of matrix analysis and its applications in other parts of mathematics and offer them a possibility to discuss current developments in these subjects.

Matrix theory is used in practically all other parts of mathematics and all areas to which mathematics is applied, and, in return, other parts of mathematics can be very useful in proving things about matrices, sometimes things that are very difficult or impossible to prove using conventional matrix theoretic methods. Many advances have been made recently, both theoretically and practically, with a lot of discussion between matrix people and others.

The presentations of both Invited and Contributed papers will be included.

Researchers and graduate students in the area of linear algebra, statistical models and computation are particularly encouraged to attend the workshop. The work of young scientists has a special position in the MAT-TRIAD 2009. The best talk of graduate students or scientists with a recently completed Ph.D. will be awarded. Four winners of Young Scientists Awards of MAT-TRIAD 2007 (YSA 2007) are honored to deliver invited talks on MAT-TRIAD 2009.

Contributed Papers are welcome!

The deadline for the registration and submission of abstracts of contributed papers is **February 28, 2009**.

Workshop schedule:

The Workshop is planned to open on **Monday, March 23**, in the morning, and close on **Friday, March 27**, in the evening.

The participants are expected to arrive at Będlewo on **Sunday, March 22**, in the afternoon. Departure from Będlewo is planned on **Friday, March 27**, in the evening or **Saturday, March 28**, in the morning.

Invited speakers:

- Charles R. Johnson (USA)
- João Tiago Mexia (Portugal)
- Juan Manuel Peña (Spain)
- Dietrich von Rosen (Sweden)
- Richard S. Varga (USA)

Invited speakers - YSA 2007

- Miguel Fonseca (Portugal)
- Vladimir Kostić (Serbia)
- Dorota Kubalińska (Germany)
- Iwona Wróbel (Poland)



YSA'07 Winners

The workshop will include two special courses:

- Andrzej Cegielski (Poland)

"Iterative methods for large scale linear feasibility problems"

We consider linear feasibility problems and linear split feasibility problems. We reduce the problems to finding a fixed point of an algorithmic operator and present iterative methods for solving these problems. Moreover, we present application and methods for solving these problems.

Necessary background: Elementary linear algebra, basic properties of convex sets and convex functions, fundamentals of convex optimization.

Lecture 1:

- (a) Convex optimization problems: convex feasibility problem, linear feasibility problem, split feasibility problem, linear split feasibility problem.
- (b) Examples of applications.
- (c) Algorithmic operators and their properties: nonexpansive operators, firmly nonexpansive operators, relaxed firmly nonexpansive operators, averaged operators, strongly quasi nonexpansive operators, separating operators.

Lecture 2:

- (a) Projection methods: von Neumann method of alternative projection, Kaczmarz method of cyclic projection, Cimmino method of simultaneous projection, Landberger method, projected Landberger method.
- (b) Examples of metric projection.
- (c) Convergence theorems: Opial's theorem, Krasnosel'ski-Mann theorem.
- (d) Convergence of projection methods.

Lecture 3: Extrapolated projection methods and their convergence.

- Charles R. Johnson (USA)

"Special classes of matrices: Positivity"

Primary Classes: positive definite matrices (PD), M-matrices (M), totally positive matrices (TP), and P-matrices (P)

Purpose: to acquaint researchers with the fundamental properties of and recent results about these classes of matrices to support research in this major area of matrix analysis. Open problems will be mentioned.

Necessary Background: elementary linear algebra, basic theory of eigenvalues, and some familiarity with the Perron-Frobenius theory of nonnegative matrices.

Lecture 1: Introduction to each class, including reasons for interest, basic properties and some open questions. The major tool for each class (Schur parameters for PD, diagonal dominance for M, the elementary bidiagonal factorization for TP, and non- sign- reversal for P) will be introduced. Also the related classes, such as doubly nonnegative (DN), inverse-M (IM), positive P, and stable matrices, etc, will be introduced.

Lecture 2: Determinantal inequalities known in each class, their implications, and further questions about determinantal inequalities. The unifying role of Newton matrices and the Taussky unification problem.

Lecture 3: Completion and interpolation problems for each class, and open questions in this area.

Lecture 4: Advanced properties for each class, particular recent results, and open questions stemming from recent work.



