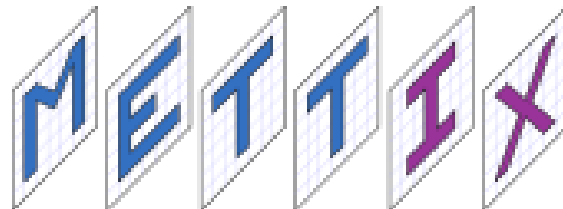


Matrix Equations and Tensor Techniques IX (METTIX)



Report of Contributions

Contribution ID: 8

Type: **Extended abstract**

Solving PDEs on hypercubes using Chebyshev interpolation

Friday, September 10, 2021 2:40 PM (20 minutes)

Primary authors: KRESSNER, Daniel (EPFL); STRÖSSNER, Christoph (EPFL)

Presenter: STRÖSSNER, Christoph (EPFL)

Session Classification: Talks

Contribution ID: 9

Type: **Extended abstract**

Divide and conquer methods for functions of matrices with banded or hierarchical low-rank structure

Friday, September 10, 2021 3:20 PM (20 minutes)

Primary authors: CORTINOVIS, Alice (EPFL); KRESSNER, Daniel (EPFL); MASSEI, Stefano (Eindhoven University of Technology)

Presenter: CORTINOVIS, Alice (EPFL)

Session Classification: Talks

Contribution ID: 10

Type: **Extended abstract**

Recent Progresses on Highly Entrywise Accurate Methods For Matrix Equations

Thursday, September 9, 2021 11:30 AM (20 minutes)

Primary author: LI, Ren-Cang (University of Texas at Arlington)

Presenter: LI, Ren-Cang (University of Texas at Arlington)

Session Classification: Talks

Contribution ID: 11

Type: **Extended abstract**

A recursive eigenspace computation for the Canonical Polyadic decomposition

Friday, September 10, 2021 11:30 AM (20 minutes)

Primary authors: EVERT, Eric (KU Leuven); Mr VANDECAPPELLE, Michiel (KU Leuven); Dr DE LATHAUWER, Lieven (KU Leuven)

Presenter: EVERT, Eric (KU Leuven)

Session Classification: Talks

Contribution ID: 12

Type: **Extended abstract**

Improved variants of the Hutch++ algorithm for trace estimation

Thursday, September 9, 2021 4:50 PM (10 minutes)

Primary authors: PERSSON, David (EPFL); CORTINOVIS, Alice (École Polytechnique Fédérale de Lausanne); KRESSNER, Daniel (EPFL)

Presenter: PERSSON, David (EPFL)

Session Classification: Paper blitz

Contribution ID: 13

Type: **Extended abstract**

Multiway data regression using a spline-type tensor decomposition

Friday, September 10, 2021 11:50 AM (20 minutes)

Primary author: WIDDERSHOVEN, Raphaël (Stadius - KU Leuven)

Co-author: Dr DE LATHAUWER, Lieven (KU Leuven)

Presenter: WIDDERSHOVEN, Raphaël (Stadius - KU Leuven)

Session Classification: Talks

Contribution ID: 14

Type: **Extended abstract**

A mu-mode integrator for solving evolution equations in Kronecker form

Friday, September 10, 2021 4:50 PM (20 minutes)

Primary authors: OSTERMANN, Alexander; CASSINI, Fabio (University of Trento); ZIVCOVICH, Franco; EINKEMMER, Lukas; CALIARI, Marco

Presenter: CASSINI, Fabio (University of Trento)

Session Classification: Talks

Contribution ID: 15

Type: **Extended abstract**

Computing the condition number of tensor decompositions through Tucker compression

Friday, September 10, 2021 11:10 AM (20 minutes)

Primary author: DEWAELE, Nick (KU Leuven)

Co-authors: Dr BREIDING, Paul (MPI MiS); Prof. VANNIEUWENHOVEN, Nick (KU Leuven)

Presenter: DEWAELE, Nick (KU Leuven)

Session Classification: Talks

Contribution ID: 16

Type: **Extended abstract**

The Extended Aluthge Transform

Thursday, September 9, 2021 5:20 PM (10 minutes)

Primary authors: Prof. BENHIDA, Chafiq (Universite de Lille); CURTO, Raul (University of Iowa)

Presenter: CURTO, Raul (University of Iowa)

Session Classification: Paper blitz

Contribution ID: 17

Type: **Extended abstract**

Hierarchical adaptive low-rank format with applications to discretized PDEs

Friday, September 10, 2021 3:40 PM (20 minutes)

Primary authors: KRESSNER, Daniel (EPFL); MASSEI, Stefano (Eindhoven University of Technology); ROBOL, Leonardo (University of Pisa)

Presenter: MASSEI, Stefano (Eindhoven University of Technology)

Session Classification: Talks

Contribution ID: 18

Type: **Extended abstract**

Solving the Discrete Euler-Arnold Equations for the Generalized Rigid Body Motion

Thursday, September 9, 2021 4:00 PM (20 minutes)

Primary author: CARDOSO, Joao (Instituto Politécnico de Coimbra - ISEC)

Co-author: Dr MIRALDO, Pedro (Instituto Superior Técnico, Universidade de Lisboa)

Presenter: CARDOSO, Joao (Instituto Politécnico de Coimbra - ISEC)

Session Classification: Talks

Contribution ID: 19

Type: **Extended abstract**

Non-intrusive model order reduction for cross-diffusion systems

Thursday, September 9, 2021 10:15 AM (10 minutes)

Primary authors: Prof. KARASOZEN, Bulent (Department of Mathematics, Middle East Technical University, Ankara, Turkey); Mrs MÜLAYIM, Gülden; Prof. UZUNCA, Murat (Sinop University)

Presenter: Prof. UZUNCA, Murat (Sinop University)

Session Classification: Paper blitz

Contribution ID: 20

Type: **Extended abstract**

Solving large-scale Riccati equations with indefinite quadratic terms

Thursday, September 9, 2021 5:00 PM (10 minutes)

Primary authors: BENNER, Peter (Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany); HEILAND, Jan (Max Planck Institute for Dynamics of Complex Technical Systems); Dr WERNER, Steffen (Max Planck Institute for Dynamics of Complex Technical Systems)

Presenter: HEILAND, Jan (Max Planck Institute for Dynamics of Complex Technical Systems)

Session Classification: Paper blitz

Contribution ID: 21

Type: **Extended abstract**

Solving power series matrix equations encountered in stochastic processes by means of fixed point iterations

Friday, September 10, 2021 9:00 AM (40 minutes)

Primary author: BINI, Dario Andrea (Department of Mathematics, University of Pisa)

Presenter: BINI, Dario Andrea (Department of Mathematics, University of Pisa)

Contribution ID: 22

Type: **Extended abstract**

Mixed precision recursive block diagonalization for bivariate functions of matrices

Thursday, September 9, 2021 9:45 AM (10 minutes)

Primary authors: MASSEI, Stefano (Eindhoven University of Technology); ROBOL, Leonardo (University of Pisa)

Presenter: ROBOL, Leonardo (University of Pisa)

Session Classification: Paper blitz

Contribution ID: 23

Type: **Extended abstract**

Decoupling Dominant Z-eigenvectors of Tensor Kronecker Products

Friday, September 10, 2021 5:10 PM (20 minutes)

Primary authors: COLLEY, Charles (Purdue University); Dr GLEICH, David (Purdue University); Dr NASSAR, Huda (Relational AI)

Presenter: COLLEY, Charles (Purdue University)

Session Classification: Talks

Contribution ID: 24

Type: **Extended abstract**

Inexactness in low-rank methods for large matrix equations

Thursday, September 9, 2021 10:05 AM (10 minutes)

Primary author: KÜRSCHNER, Patrick (Leipzig University of Applied Sciences (HTWK Leipzig))

Presenter: KÜRSCHNER, Patrick (Leipzig University of Applied Sciences (HTWK Leipzig))

Session Classification: Paper blitz

Contribution ID: 25

Type: **Extended abstract**

Stein-based preconditioners for weak-constraint 4D-Var

Thursday, September 9, 2021 9:55 AM (10 minutes)

Primary author: PALITTA, Davide (Alma Mater Studiorum, Università di Bologna)

Co-author: Dr TABEART, Jemima (University of Edinburgh)

Presenter: PALITTA, Davide (Alma Mater Studiorum, Università di Bologna)

Session Classification: Paper blitz

Contribution ID: 26

Type: **Extended abstract**

A Successive Divide and Conquer Algorithm for the Unilateral Quadratic Matrix Equation

Thursday, September 9, 2021 3:40 PM (20 minutes)

Primary authors: BENNER, Peter (Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany); KÖHLER, Martin (MPI Magdeburg)

Presenter: KÖHLER, Martin (MPI Magdeburg)

Session Classification: Talks

Contribution ID: 28

Type: **Extended abstract**

Optimal Constant for Generalized Diagonal Update Method

Friday, September 10, 2021 10:05 AM (20 minutes)

Primary authors: KIM, Hyun-Min (Department of Mathematics, Pusan National University); JU, Jeong-Hoon; Mr KIM, Young-Jin (Pusan National University)

Presenter: JU, Jeong-Hoon

Session Classification: Talks

Contribution ID: 29

Type: **Extended abstract**

Operator-dependent prolongation and restriction for parameter-dependent multigrid methods using low-rank tensor formats

Thursday, September 9, 2021 2:40 PM (20 minutes)

Primary author: Mr WERTHMANN, Tim A. (RWTH Aachen University)

Co-author: Prof. GRASEDYCK, Lars (RWTH Aachen University)

Presenter: Mr WERTHMANN, Tim A. (RWTH Aachen University)

Session Classification: Talks

Contribution ID: 30

Type: **Extended abstract**

Low-rank tensor uniformization for tumor progression modeling

Thursday, September 9, 2021 3:00 PM (20 minutes)

Primary author: KLEVER, Maren (RWTH Aachen University)

Co-authors: Mr GEORG, Peter (University Regensburg); Prof. GRASEDYCK, Lars (RWTH Aachen University); Mr SCHILL, Rudolf (University Regensburg); Prof. SPANG, Rainer (University Regensburg); Prof. WETTIG, Tilo (University Regensburg)

Presenter: KLEVER, Maren (RWTH Aachen University)

Session Classification: Talks

Contribution ID: 31

Type: **Extended abstract**

On Newton Method for the Minimal Positive Solution of a System of Multi-Variable Nonlinear Matrix Equations

Friday, September 10, 2021 10:25 AM (20 minutes)

Primary author: KIM, Taehyeong

Co-author: Prof. KIM, Hyun-Min (Department of Mathematics, Pusan National University)

Presenter: KIM, Taehyeong

Session Classification: Talks

Contribution ID: 32

Type: **Extended abstract**

A Tensor-Train Dictionary Learning algorithm based on spectral proximal alternating linearized minimization

Friday, September 10, 2021 3:00 PM (20 minutes)

Primary authors: BRANDONI, Domitilla (Università di Bologna); SIMONCINI, Valeria (Università di Bologna); Dr PORCELLI, Margherita (Università di Bologna)

Presenter: BRANDONI, Domitilla (Università di Bologna)

Session Classification: Talks

Contribution ID: 33

Type: **Extended abstract**

Palindromic linearization and numerical solution of nonsymmetric algebraic T-Riccati equations

Thursday, September 9, 2021 12:10 PM (20 minutes)

Primary authors: MEINI, Beatrice; IANNAZZO, Bruno; PALITTA, Davide; BENNER, Peter

Presenter: MEINI, Beatrice

Session Classification: Talks

Contribution ID: 34

Type: **Extended abstract**

Matrix-oriented FEM formulation for stationary and time-dependent PDEs on x-normal domains

Friday, September 10, 2021 4:30 PM (20 minutes)

Primary authors: FRITTELLI, Massimo (Università del Salento); SGURA, Ivonne (Department of Mathematics & Physics, University of Salento, Lecce)

Presenter: FRITTELLI, Massimo (Università del Salento)

Session Classification: Talks

Contribution ID: 35

Type: **Extended abstract**

Elementwise accurate doubling algorithm for shifted M-matrix algebraic Riccati equations

Thursday, September 9, 2021 11:50 AM (20 minutes)

Primary authors: ADDIS, Elena (università di Perugia); POLONI, Federico (Università di Pisa); IANNAZZO, Bruno

Presenter: ADDIS, Elena (università di Perugia)

Session Classification: Talks

Contribution ID: 36

Type: **Extended abstract**

On the number of elements needed for low-rank tensor train completion

Friday, September 10, 2021 12:30 PM (20 minutes)

Primary author: BUDZINSKIY, Stanislav

Presenter: BUDZINSKIY, Stanislav

Session Classification: Talks

Contribution ID: 37

Type: **Extended abstract**

Matrix Completion with Sparse Measurement Errors

Thursday, September 9, 2021 5:30 PM (10 minutes)

Primary author: PETROV, Sergey (INM RAS)

Presenter: PETROV, Sergey (INM RAS)

Session Classification: Paper blitz

Contribution ID: 38

Type: **Extended abstract**

Model order reduction and utilization of the reduced basis for aggregation kinetic equations

Thursday, September 9, 2021 5:10 PM (10 minutes)

Primary authors: MATVEEV, Sergey (Marchuk INM RAS and Lomonosov MSU); Mr TIMOKHIN, Ivan (Lomonosov Moscow State University); Prof. TYRTYSHNIKOV, Eugene (Marchuk INM RAS)

Presenter: MATVEEV, Sergey (Marchuk INM RAS and Lomonosov MSU)

Session Classification: Paper blitz

Contribution ID: 39

Type: **Extended abstract**

A distance formula for tuples of doubly commuting matrices

Thursday, September 9, 2021 10:25 AM (10 minutes)

Primary authors: SINGLA, Sushil (Shiv Nadar University); Dr GROVER, Priyanka (Shiv Nadar University Delhi NCR)

Presenter: SINGLA, Sushil (Shiv Nadar University)

Session Classification: Paper blitz

Contribution ID: 40

Type: **Extended abstract**

Randomized Algorithms for Rounding the Tensor Train Format

Friday, September 10, 2021 12:10 PM (20 minutes)

Primary author: AL DAAS, Hussam (STFC, Rutherford Appleton Laboratory)

Presenter: AL DAAS, Hussam (STFC, Rutherford Appleton Laboratory)

Session Classification: Talks

Contribution ID: 41

Type: **Extended abstract**

On the low-rank approximations in the Chebyshev norm

Friday, September 10, 2021 5:30 PM (20 minutes)

Primary authors: MOROZOV, Stanislav (Marchuk Institute of Numerical Mathematics of the Russian Academy of Sciences); Prof. ZAMARASHKIN, Nikolai; Prof. TYRTYSHNIKOV, Eugene (Marchuk INM RAS)

Presenter: MOROZOV, Stanislav (Marchuk Institute of Numerical Mathematics of the Russian Academy of Sciences)

Session Classification: Talks

Contribution ID: 42

Type: **Extended abstract**

Solution of the matrix equation for geodesics associated with the Riemannian metric on the space of positive-definite matrices based on the power potential

Friday, September 10, 2021 9:45 AM (20 minutes)

Primary author: MOAKHER, Maher (University of Tunis El Manar)

Co-authors: IANNAZZO, Bruno; Dr CHOUAIEB, Nadia (University of Tunis El Manar)

Presenter: MOAKHER, Maher (University of Tunis El Manar)

Session Classification: Talks

Contribution ID: 43

Type: **Extended abstract**

On the consistency of $X^T AX = B$ when B is either symmetric or skew

Thursday, September 9, 2021 11:10 AM (20 minutes)

Primary authors: Dr BOROBLA, Alberto (Universidad Nacional de Educación a Distancia); Dr CANOGAR, Roberto (Universidad Nacional de Educación a Distancia); DE TERÁN, Fernando (Universidad Carlos III de Madrid)

Presenter: DE TERÁN, Fernando (Universidad Carlos III de Madrid)

Session Classification: Talks

Contribution ID: 44

Type: **Extended abstract**

A matrix-oriented POD-DEIM algorithm applied to semilinear differential matrix equations

Thursday, September 9, 2021 12:30 PM (20 minutes)

Primary authors: KIRSTEN, Gerhard (University of Bologna); SIMONCINI, Valeria (Universita' di Bologna)

Presenter: KIRSTEN, Gerhard (University of Bologna)

Session Classification: Talks

Contribution ID: 45

Type: **Extended abstract**

A predictor-corrector method in quantized tensor train format for the equilibrium of the chemical master equation

Thursday, September 9, 2021 3:20 PM (20 minutes)

Primary authors: Ms DINH, Trang; Prof. SIDJE, Roger B.; Dr REID, Brandon M.

Presenter: Ms DINH, Trang

Session Classification: Talks

Contribution ID: 47

Type: **Extended abstract**

From analysis to learning: Tensor-based assessment of latent similarity

Thursday, September 9, 2021 9:00 AM (40 minutes)

Primary author: Dr DE LATHAUWER, Lieven (KU Leuven)

Presenter: Dr DE LATHAUWER, Lieven (KU Leuven)