



MAX-PLANCK-INSTITUT
FÜR DYNAMIK KOMPLEXER
TECHNISCHER SYSTEME
MAGDEBURG

CSC/DRI group retreat

Virtual on BigBlueButton

June 2nd – 4th, 2020

Tuesday, June 2

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| Session 1 | Chair: Tobias Kasper Skovborg Ritschel |
| 08:30-08:50 | Roman Weinhandl (15+5 min) |
| | A Greedy Update Method in Comparison With the GMREST Method for Nonsymmetric Problems |
| 08:50-09:10 | Christian Himpe (15+5 min) |
| | How (Not) to Compare Model Order Reduction Algorithms |
| 09:10-09:30 | Jens Saak (15+5 min) |
| | Can we compute the matrix inertia of Kronecker-structured saddlepoint matrices? |

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| Session 2 | Chair: Carolin Penke |
| 10:00-10:20 | Steffen Werner (15+5 min) |
| | Structured Transfer Functions of Quadratic-Bilinear Systems |
| 10:20-10:40 | Lihong Feng (15+5 min) |
| | Robustness comparison of two error estimators |
| 10:40-11:00 | Tim Mitchell (15+5 min) |
| | Optimization of Passive Systems |

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| Session 3 | Chair: Steffen Werner |
| 14:00-14:20 | Petar Mlinarić (15+5 min) |
| | Clustering-based model order reduction |
| 14:20-14:40 | Athanasios Antoulas (15+5 min) |
| | Newman's bound and the Loewner framework |
| 14:40-15:00 | Sridhar Chellappa (15+5 min) |
| | Extending Reduced Basis Method to Systems Solved by Black-Box ODE Solvers |

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| Session 4 | Chair: Sridhar Chellappa |
| 15:30-15:50 | Pawan Goyal (15+5 min) |
| | Operator inference combined with neural network to learning nonlinear dynamical systems |
| 15:50-16:10 | Igor Pontes Duff (15+5 min) |
| | Identification of Second-Order Systems from Frequency Response Data |
| 16:10-16:30 | Davide Palitta (15+5 min) |
| | Fast, matrix-free matrix-vector product with the Loewner matrix |

Wednesday, June 3

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| Session 1 | Chair: Carmen Gräßle |
| 08:30-08:50 | Harshit Kapadia (15+5 min) |
| | Preliminary studies on reduced-order modeling of fluid dynamic problems |
| 08:50-09:10 | Sara Grundel (15+5 min) |
| | (Interpolatory) parametric model order reduction |
| 09:10-09:30 | Maximilian Behr (15+5 min) |
| | Symplectic Integrators for Differential Riccati Equations |
| 09:30-09:50 | Jennifer Przybilla (15+5 min) |
| | Damping Optimization of Parameter-Dependent Mechanical Systems using the Reduced Basis Method |

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| Session 2 | Chair: Jennifer Przybilla |
| 13:30-13:50 | Martin Köhler (15+5 min) |
| | Convergence Issues while Computing the Generalized Matrix Sign Function |
| 13:50-14:10 | Carolin Penke (15+5 min) |
| | Complex unitary QR and symplectic orthogonal QR decompositions |
| 14:10-14:30 | Tobias Kasper Skovborg Ritschel (15+5 min) |
| | Steady states of reduced quadratic models obtained by lifting nonlinear second-order models |
| 14:30-14:50 | Dimitrios Karachalios (15+5 min) |
| | Describing Functions (DF) framework for modeling non-linearities |

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| 15:30-17:00 | Social Event Scribbl |
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Thursday, June 4

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| Session 1 | Chair: Björn Baran |
| 9:00-9:20 | Kirandeep Kour (15+5 min) |
| | Computing Nonlinear Boundary via Exponential Support Tensor Machine |
| 9:20-9:40 | Karim Cherifi (15+5 min) |
| | Model reduction of the P2D-PSD battery model |
| 9:40-10:00 | Jan Heiland (15+5 min) |
| | Treating the incompressibility constraint in model reduction and optimal control of flow problems with free boundaries |

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| Session 2 | Chair: Dimitrios Karachalios |
| 10:30-10:50 | Carmen Gräßle (15+5 min) |
| | Variational data assimilation for POD based MPC |
| 10:50-11:10 | Hussam Al Daas (15+5 min) |
| | On Preconditioning and Recycling Subspaces Strategies for Multilinear Systems |
| 11:10-11:30 | Ion Victor Gosea (15+5 min) |
| | The AAA algorithm - some ideas, extensions, and challenges |

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| Session 3 | Chair: Kirandeep Kour |
| 14:00-14:20 | Neeraj Sarna (15+5 min) |
| | Sparse Recovery based Quadrature for Integration of Solutions to Hyperbolic Problems |
| 14:20-14:40 | Alexander Zuyev (15+5 min) |
| | Computation of the flat output for a class of underactuated Lagrangian systems |
| 14:40-15:00 | Björn Baran (15+5 min) |
| | Choosing Outputs for "good" Riccati Feedback Control of the Stefan Problem |