



Universität
Basel

Research Project

Sparse-grid methods in optimal control

Project funded by own resources

Project title Sparse-grid methods in optimal control

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Organisation / Research unit

Departement Mathematik und Informatik / Computational Mathematics (Harbrecht)

Project start 01.02.2017

Probable end 31.01.2024

Status Completed

The present project is concerned with the efficient solution of large scale Riccati and Lyapunov equations. Such problems typically appear in state-feedback control of systems governed by partial differential equations. We apply a sparse grid discretization in order to arrive at a solution method which scales essentially linear in the number of unknowns.

Keywords Riccati equation, Lyapunov equation, sparse grids

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Add publication

Published results

4634333, Harbrecht, Helmut; Kalmykov, Ilja, Sparse grid approximation of the Riccati operator for closed loop parabolic control problems with Dirichlet boundary control, 0363-0129 ; 1095-7138, SIAM Journal on Control and Optimization (SICON), Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

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