Austrian Numerical Analysis Day 2026

Space-Time Primal-Dual Active Set Method for Contact Dynamic Problems

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Motivated by applications stemming from geo- and bio-mechanics, railway and MEMS technologies, dynamic models with inequality constraints are studied. The corresponding non-smooth variational problems describe cohesive obstacle, multi-body contact, non-penetrating cracks are fluid-driven fractures. For numerical solution of dynamic impact problems for bars and beams, a primal-dual active set method is elaborated within space-time finite elements (ST-PDAS), and analytical benchmarks are constructed in 1D setting by generalizing D'Alembert formula and Fourier series.

References

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