

Einladung zu einem Promotionsvortrag

Vortragender:	Valmir Ganiu
Thema:	Discontinuous Galerkin Methods for the Approximation of the Liouville-von Neumann Equation
Inhalt:	The dissertation develops a computational framework based on the Discontinuous Galerkin (DG) method to efficiently approximate the Liouville–von Neumann equation for quantum charge transport in nanoscale semiconductor devices, offering a faster alternative to traditional approaches like NEGF and QTBM. It establishes the theoretical foundations, numerical schemes, boundary conditions, and self-consistent coupling with the Poisson equation, and introduces several DG variants for spatial discretization combined with Runge–Kutta time integration. Validation on multiple quantum devices and high-performance computing analyses show that the DG approach—particularly the DGDG variant—achieves accuracy comparable to NEGF while significantly reducing computational runtime.
Termin:	16.06.2026, 15:00 Uhr
Ort:	MSW 04-02-03, Martin-Schmeißer-Weg 4, 44227 Dortmund. Zoom: https://tu-dortmund.zoom.us/j/94867085623?pwd=kRP5sWpUQcx2uEAgS5UI2Nd48mYaYN.1 Meeting-ID: 948 6708 5623 Kenncode: 854986
Vortragsleitung:	Apl. Prof. Dr.-Ing. Dirk Schulz

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