

Invitation to the Oral Examination – Department [CS / GE / EE / MATH]

For the occasion of his/her examination for a Doctoral Degree,

Jophin John

will present his/her dissertation entitled/on

Leveraging Dynamic Resource Management for Power Management and Fault Tolerance in High Performance Computing

on 24. **October 2024** at **14:30 h**

Attendance to the presentation is open to the public. The presentation will be in English /~~German~~.

The candidate, all members of the Examination Committee, and authorized examiners of the TUM School of CIT are invited to the presentation and subsequent oral examination.

The presentation and subsequent examination will take place online via BBB: only for Committee / in room **00.10.011 (ehem. Fakultdsraum IN)**.

Examination committee:

Chair: **Prof. Darius Burschka**

First Examiner: **Prof. Michael Gerndt**

Second Examiner: **Prof. Michael Bader**

Third Examiner: -

Munich/Garching, the 24 of **October 2024**

Mailing list:

Members of the examination committee

Doctoral candidate

Abstract:

This work improves system utilisation, optimises power consumption, and enhances fault tolerance by leveraging dynamic resource management techniques. Towards that, an adaptive batch scheduler, a

power-aware scheduler and a fully adaptive checkpointing system are developed as part of this work to aid HPC applications that were created using standard and malleable (dynamic) Message Passing Interface (MPI) applications. The adaptive batch scheduler uses performance-aware scheduling strategies and improves the overall system utilisation by reconfiguring the running applications and launching new applications.