**4th International Workshop on RESource DISaggregation in High-Performance Computing (RESDIS)**

Held in conjunction with SC’24

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Organizers:

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**Introduction**

Disaggregation is an emerging compute paradigm that splits existing monolithic servers into a number of consolidated single-resource pools that communicate over a fast interconnect. This model decouples individual hardware resources, including tightly coupled ones such as processors and memory, and enables the composition of logical compute platforms with flexible and dynamic hardware configurations.

The concept of disaggregation is driven by various recent trends in computation. From an application perspective, the increasing importance of data analytics and machine learning workloads in HPC centers brings unprecedented need for memory capacity, which is in stark contrast with the growing imbalance in the peak compute-to-memory capacity ratio of traditional system board based server platforms where memory modules are co-located with processors. Meanwhile, traditional simulation workloads leave memory underutilized. At the hardware front, the proliferation of heterogeneous, special purpose computing elements promotes the need for configurable compute platforms, while at the same time, the increasing maturity of optical interconnects raises the prospects of better distance independence in networking infrastructure.

The workshop intends to explore various aspects of resource disaggregation, composability and their implications for high performance computing, both in dedicated HPC centers as well as in cloud environments. RESDIS aims to bring together researchers and industrial practitioners to foster discussion, collaboration, mutual exchange of knowledge and experience related to future disaggregated systems.

**Papers in proceedings**

* **4th International Workshop on RESource DISaggregation in High-Performance Computing (RESDIS)**

*Examining the Viability of Row-Scale Disaggregation for Production Applications*

Curtis Shorts (Queen's University), Ryan Eric Grant (Queen's University)

*Towards Disaggregated NDP Architectures for Large-scale Graph Analytics*

Suyeon Lee (Georgia Institute of Technology), Vishal Rao (Georgia Institute of Technology), Ada Gavrilovska (Georgia Institute of Technology)

*Granularity and Interference-Aware GPU Sharing with MPS*

Alex Weaver (University of North Texas), Krishna Kavi (University of North Texas), Dejan Milojicic (Hewlett Packard Enterprise), Rolando Pablo Hong Enriquez (Hewlett Packard Enterprise), Ninad Hogade (Hewlett Packard Enterprise), Alok Mishra) Hewlett Packard Enterprise), Gayatri Mehta (University of North Texas)

*Multi-Host Sharing of a Single-Function NVMe Device in a PCIe Cluster*

Jonas Markussen (Dolphin Interconnect Solutions), Lars Bjørlykke Kristiansen (Dolphin Interconnect Solutions), Håkon Stensland (Simula Research Laboratory / University of Oslo), Pål Halvorsen (SimulaMet / Oslo Metropolitan University)

*A Software Platform to Support Disaggregated Quantum Accelerators*

Ercüment Kaya (Leibniz Supercomputing Centre / TU Munich), Jorge Echavarria (Leibniz Supercomputing Centre), Muhammad Nufail Farooqi (Leibniz Supercomputing Centre), Aleksandra Swierkowska (Leibniz Supercomputing Centre / TU Munich), Patrick Hopf (Leibniz Supercomputing Centre / TU Munich), Burak Mete (Leibniz Supercomputing Centre / TU Munich), Laura Schulz (Leibniz Supercomputing Centre), Martin Schulz (TU Munich)