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ENABLING INDUSTRIAL APPLICATIONS TOWARDS EXASCALE COMPUTING

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BASTIAN KOLLER*, ANDREAS WIERSE†

* HLRS
Nobelstraße 19, 70569 Stuttgart, Germany
koller@hlrs.de, https://www.hlrs.de/

† SICOS BW
Nobelstraße 19, 70569 Stuttgart, Germany
wierse@sicos-bw.de, https://www.sicos-bw.de/

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ABSTRACT

This Mini-Symposium will discuss activities and success stories for Industrial Applications in High-Performance Computing (e.g. from the Engineering, Manufacturing, Energy, etc), their uptake in specific usage scenarios and the challenges they face when moving towards high scalability provided on the next generation systems. Also we will present how Industrial Applications raise the demand for complex workflows, e.g. by utilizing not only "classical" HPC, but also embedding Artificial Intelligence and High Performance Data Analytics into their evolution.

The presentations will be invited from European but also National Activities, such as the Centres of Excellence (CoEs[1]) in HPC Applications and the currently 33 National Competence Centres (NCCs) in EuroCC[2].

Participants from various countries and institutions will present and discuss their findings regarding industrial codes, exascale applications and mechanisms of support for industrial uptake as well as the resulting benefits for (trans-)national economies and societies. The main focus points shall be:

1) **Industrial usage of exascale computing**: Infrastructures and services that benefit innovation potential in companies, from small and medium enterprises to large companies
2) **Industrial Applications**: How the Centres of Excellence evolve application specific codes in collaboration with industry, science and the public sector
3) **Applications and benefits**: Applications of HPC in the industry sector that resulted in economical, societal or scientific advantages
4) **National Competence Centres:** Success stories from the NCCs which are currently established as single contact point in 33 European countries to foster (among other) the industrial uptake of HPC

The participants will be experts with yearlong experiences from different fields of the topics covered, bringing together their expertise to discuss important findings in the fields mentioned. The goal of this Mini-Symposium is to give a comprehensive overview and discuss about the current status and investigations of the industrial uptakes in their different forms, the challenges arising when moving towards Exascale, as well as their importance for the scientific community and the mechanisms already existing.

REFERENCES

[1] https://www.hpccoe.eu/about/

[2] https://www.eurocc-access.eu/