

PUNCHLunch –

the online lunch seminar of the PUNCH4NFDI Consortium

Every second Thursday, 12:30-13:30 hrs: keynote and discussion



Thursday, 24 February 2022, 12:30 hrs:

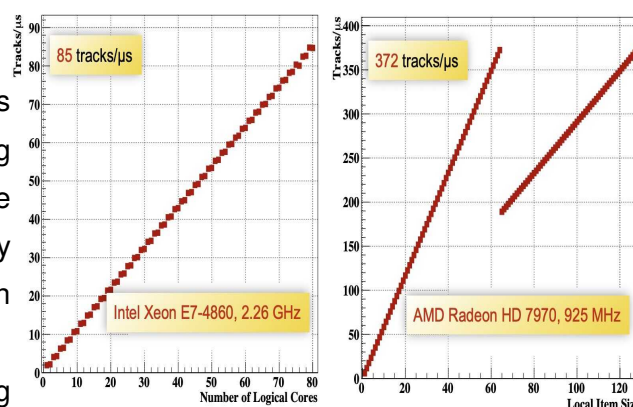
Prof. Dr. Ivan Kisel (Frankfurt Institute for Advanced Studies)

Workflows for efficient pattern recognition under different computing architectures

Parallel algorithms on many-core architectures

Abstract:

The search for and reconstruction of particles produced in collisions of heavy ions is a challenging and very time-consuming problem. To solve it, we have developed highly efficient and mathematically accurate approaches based on the cellular automaton and the Kalman filter. These methods in their basis contain wide opportunities for creating parallel data flows, and hence parallel algorithms based on them. This, in turn, leads to an efficient use of computing resources of modern HPC clusters based on many-core CPU/GPU architectures.



In order to keep the portability of the algorithms with respect to their use on different computer architectures, we have worked out an improved procedure to develop the source code. Via this implementation method the algorithm and several overheads allow the use of the code on different modern and future CPU/GPU architectures.

The discussion will cover both the development of parallel algorithms for data processing and analysis, and their rather simple adaptation for efficient use on different computer architectures.

Connection details:

ZOOM Meeting “PUNCHLunch seminar”: <https://indico.desy.de/event/33453/>

Webinar ID: 919 1665 4877, **passcode:** 481572

Next event: The Dark Matter Data Centre, 10 March 2022

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