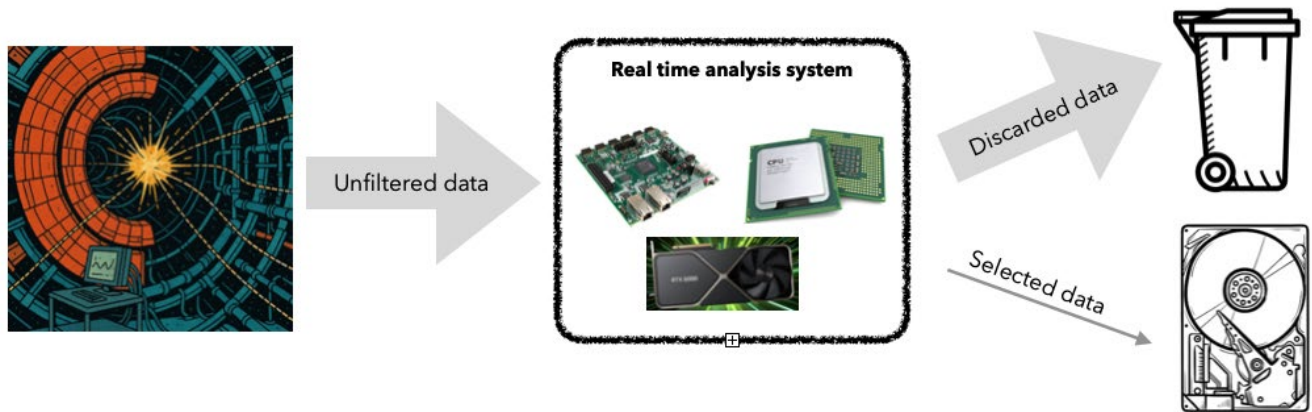


PHYSIKALISCHES KOLLOQUIUM

AM 05. MAI 2024 UM 16 UHR C.T.
IM GROßEN HÖRSAAL



PROCESSING TERABYTES OF DATA PER SECOND: REAL-TIME ANALYSIS IN HIGH ENERGY PHYSICS

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High energy physics (HEP) experiments perform measurements of fundamental particle properties and searches for so far unknown particles. In this quest, large statistics of particle collisions and decays are observed to achieve the required precision. Typically, HEP experiments produce much more data than what can be stored permanently and analysed efficiently offline. Therefore, the produced data must be analysed in real time to store only data of interest for later analysis. This leads to huge computing demands, which can only be met by selecting the most suited compute technologies for the task, such as CPUs, GPUs, FPGAs,....

In this colloquium, I will give an overview of the challenges in real-time analysis systems of existing and future HEP experiments, and how to overcome them.