

# 24th International Conference on Computing in High Energy & Nuclear Physics



**Monday, November 4, 2019 - Friday, November 8, 2019**

**Adelaide Convention Centre**

## **Scientific Program**

The CHEP conferences address the computing, networking and software needs of the world's leading data-intensive science experiments that analyse hundreds of petabytes of data using worldwide computing resources. The conference is centred on High Energy Physics but welcomes contributions from all data intensive sciences. The Conference is a major event in the field (~500 participants), featuring plenary sessions, parallel sections and poster presentations; it publishes peer-reviewed proceedings. The parallel sessions are split into 9 separate tracks, listed below.

## Track 1 – Online and Real-time Computing

**Keywords:** Data acquisition; high-level triggers; trigger-less acquisition; online data calibration; online reconstruction; machine learning for online; real-time analysis; event building; configuration and access controls; detector control systems; real-time analytics and monitoring; heterogeneous resources online; trigger techniques and algorithms; hardware trigger algorithms; online databases.

## Track 2 – Offline Computing

**Keywords:** Detector simulation; MC event generation; offline reconstruction; detector geometries; non-event data; data classification; fast simulation; machine learning for offline; offline databases.

## Track 3 – Middleware and Distributed Computing

**Keywords:** Grid middleware; monitoring and accounting frameworks; security models and tools; distributed workload management; heterogeneous resource brokering (such as GPUs); federated authentication and authorisation infrastructures; middleware databases.

## Track 4 – Data Organisation, Management and Access

**Keywords:** Storage management frameworks; data access protocols; object, metadata and event store systems; content delivery and caching; data analytics; machine learning for DOMA; FAIR data principles.

## Track 5 – Software Development

**Keywords:** Software frameworks; software management, continuous integration; software building; testing and quality assurance; software distribution; programming techniques and tools; coding for heterogeneous architectures; integration of ML and other toolkits.

## Track 6 – Physics Analysis

**Keywords:** Analysis algorithms; object identification; object calibration; machine learning for analysis; analysis preservation; analysis workflows; lattice QCD; theory calculations.

## **Track 7 – Facilities, Clouds and Containers**

**Keywords:** Cloud resources; virtual machines and container technologies; anything-as-a-service; private and commercial clouds; dynamic provisioning; networking; computing centre infrastructure; management and monitoring; facility integration of heterogeneous resources.

## **Track 8 – Collaboration, Education, Training and Outreach**

**Keywords:** Collaborative tools; outreach activities; training initiatives; open data for outreach; data preservation for collaboration; event displays; open science cloud initiatives.

## **Track 9 – Exascale Science**

**Keywords:** HPC and supercomputers; algorithm scaling; computing models; exabyte; exaflop; compute accelerators; generic algorithms; weak scaling; quantum computing; massive scale machine learning.

## **Track X – Crossover sessions from online, offline and exascale**

This track is for selected contributions that we have identified as of common interest touching topics between online, offline and exascale computing. We bring these together in two special CHEP2019 parallel sessions.