

T 13: Sustainability

Time: Monday 16:45–17:45

Location: VG 2.103

T 13.1 Mon 16:45 VG 2.103

Users help shaping the path to a sustainably operated VISPA computing cluster — NICLAS EICH, JOHANNES ERDMANN, MARTIN ERDMANN, BENJAMIN FISCHER, ●PAUL GILLES, TIM HAUPTREIF, and JAN KELLETER — RWTH Aachen University

As climate change progresses, it is evident that computing for physical research needs to become more sustainable. Although the capacity of renewable energy resources is increasing every year, we are currently still dependent on the use of fossil electricity generation. Due to the dynamic nature of renewable energy, it is essential to target smart, adaptive power consumption for more sustainable research.

In this talk, we will present approaches and results within the VISPA project to show users their personal energy consumption in the computing cluster and enable them to automatically schedule their HT-Condor jobs based on the availability of renewable energy. We also present our digital twin of the VISPA cluster, which is primarily used to develop and test new resource-saving planning methods.

T 13.2 Mon 17:00 VG 2.103

Photovoltaics for MAGIC telescopes — ●KATHARINA KÜRSCHNER and TRISTAN FRANZISKUS GRADETZKE — TU Dortmund, Germany

The energy supply for the MAGIC telescopes on the Canary Island of La Palma, Spain, poses a particular challenge due to its remote location. The feasibility of using photovoltaic technologies are being investigated, with a focus on concentrated photovoltaics (CPV). CPV systems potentially offer higher efficiencies than conventional photovoltaic systems by using lenses or mirrors to concentrate light, but they are technically more demanding and more expensive. At present, the MAGIC telescopes are only used at night as Cherenkov telescopes. Since the MAGIC telescopes already have mirrors, the possibility of using these mirrors for energy generation during the day is being examined. Such a concept has not yet been implemented and could provide an innovative solution to the energy challenges faced by telescopes. Various aspects of CPV are compared with conventional solar systems to assess their suitability for meeting the energy needs of the MAGIC

telescopes. The current status of the analysis and initial results will be presented in this talk.

T 13.3 Mon 17:15 VG 2.103

Sustainability at Belle II — FABIAN BECHERER², FLORIAN BERNLOCHNER³, LORENZ GÄRTNER¹, ANDREAS GELLRICH², DAVID KOCH¹, ●THOMAS KUHR¹, CASPAR SCHMITT¹, and CHRISTIAN WESSEL² — ¹LMU München — ²DESY Hamburg — ³Rheinische Friedrich-Wilhelms-Universität Bonn

In the Belle II collaboration, a discussion of the sustainability topic began in 2023. A survey showed that many Belle II members care about the topic. A grassroots initiative formed and made first estimates of the footprint due to detector operation, computing, and travel.

T 13.4 Mon 17:30 VG 2.103

Know Your Footprint: Evaluating the Environmental Footprint of Individual Researchers — VALERIE LANG¹, NAMAN KUMAR BHALLA¹, ●SIMRAN GURDASANI², and PARDIS NIKNEJADI² — ¹Albert-Ludwigs-Universität Freiburg, Freiburg, Germany — ²Deutsches Elektronen-Synchrotron DESY, Hamburg and Zeuthen, Germany

Mitigating the environmental impact of particle physics is essential for addressing the broader challenges of sustainability, particularly given the resource-intensive nature of the field. The *Know your footprint* initiative, developed within the young High Energy Physicists Germany, provides a self-evaluation survey to quantify an individual's professional footprint by considering four key areas: Experiment, representing the large infrastructure within HEP collaborations; Institute, accounting for emissions from research institutes and universities; Computing, covering resource consumption for data analysis and simulations; and Travel, related to business trips for conferences, workshops, and meetings. The methodology behind the survey is presented, along with a first look at the data collected during its first year of activity. The *Know your footprint* initiative aims to raise awareness, facilitate data-driven discussions, and encourage the adoption of more sustainable research practices within the community.