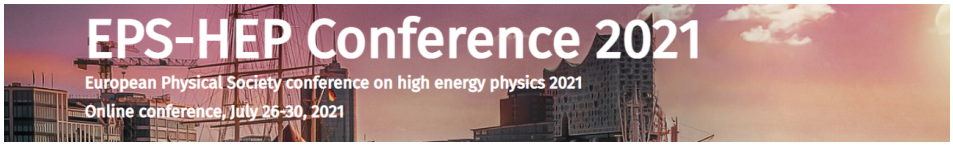

Contribution ID: **511** Type: **Parallel session talk**

Democratizing LHC data analysis with ADL/CutLang

Wednesday 28 July 2021 17:25 (20 minutes)

Data analysis at the LHC has a very steep learning curve, which erects a formidable barrier between data and anyone who wants to analyze data, either to study an idea or to simply understand how data analysis is performed. To make analysis more accessible, we designed the so-called Analysis Description Language (ADL), a domain specific language capable of describing the contents of an LHC analysis in a standard and unambiguous way, independent of any computing frameworks. ADL has an English-like highly human-readable syntax and directly employs concepts relevant to HEP. Therefore it eliminates the need to learn complex analysis frameworks written based on general purpose languages such as C++ or Python, and shifts the focus directly to physics. Analyses written in ADL can be run on data using a runtime interpreter called CutLang, without the necessity of programming. ADL and CutLang are designed for use by anyone with an interest in, and/or knowledge of LHC physics, ranging from experimentalists and phenomenologists to non-professional enthusiasts. ADL/CutLang are originally designed for research, but are also equally intended for education and public use. This approach has already been employed to train undergraduate students with no programming exprience in LHC analysis in two dedicated schools in Turkey and Vietnam, and is being adapted for use with LHC Open Data. Moreover, work is in progress towards piloting an educational module in particle physics data analysis for high school students and teachers. In this talk, we will introduce ADL and CutLang and present the educational activities based on these practical tools.

Collaboration / Activity

ADL/CutLang

First author

Email

Primary authors: SEKMEN, Sezen (Kyungpook National University (KR)); UNEL, Gokhan (University of California, Irvine); PROSPER, Harrison B. (Florida State University)

Presenter: SEKMEN, Sezen (Kyungpook National University (KR))

Session Classification: T14: Outreach, Education and Diversity

Track Classification: Outreach, Education and Diversity