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Determination of CPV Higgs mixing angle in ZZ-fusion at 1.4 CLIC

- **Speaker:** Natasa Vukasinovic
- **Status:** Accepted
- **Abstract:** In this talk we discuss the results of the full-simulation study performed at 1.4 TeV center-of-mass energy CLIC, to extract the absolute statistical precision of determination of CP violating mixing angle, where the Higgs boson is realized as a mixture of scalar and pseudoscalar states. Higgs boson is produced in ZZ- fusion, thus the CPV is probed at HZZ vertex, complementing other future Higgs factories projections given for Higgs decays to two tau leptons.

Pair-production of the charged IDM scalars at high energy CLIC

- **Speaker:** Jan Klamka
- **Status:** Accepted
- **Abstract:** The Inert Doublet Model (IDM) is a simple extension of the Standard Model, introducing an additional Higgs doublet that brings in four new scalar particles. The lightest of the IDM scalars is stable and is a good candidate for a dark matter particle. The potential of discovering the IDM scalars in the experiment at the Compact Linear Collider (CLIC), an e+e− collider proposed as the next generation infrastructure at CERN, has been tested for two high-energy running stages, at 1.5 TeV and 3 TeV centre-of-mass energy. The CLIC sensitivity to pair-production of the charged IDM scalars was studied using the full detector simulation for selected high-mass IDM benchmark scenarios and the semi-leptonic final state. To extrapolate the results to a wider range of IDM benchmark scenarios, the CLIC detector model in DELPHES was modified to take into account the had. beam-induced background. Results of the study indicate that heavy charged IDM scalars can be discovered at CLIC for most of the considered benchmark scenarios, up to masses of the order of 1 TeV.