Contribution ID: **38** Type: **Oral presentation using Zoom**

New Regime of Ultrahigh Laser and High Electron/Positron Interaction

Wednesday 27 October 2021 15:54 (24 minutes)

The International Linear Collider (ILC) will have electron and positron beam energies above 125 GeV. High intensity lasers have achieved unprecedented intensities of 10^{23} W/cm^2. Although typically such lasers have photons with energies in the eV range in the laboratory frame, colliding such high intensity lasers and the ultrahigh energy electron and positron beams of the ILC will result in laser photons with energies comparable the electron rest mass colliding with electrons or positrons at rest in the center-of-mass frame. Having such collisions after the interaction point will provide a unique opportunity to study high field science and applications. We will present simulation results of the interaction using the CAIN code and discuss the fundamental physics possibilities, such as generation of electron-positron cascades and generation of exotic particles, as well as possible applications such as easing the burden on the beam dumps through the reduction of the beam energies with ultrahigh intensity lasers.

1st preferred time slot for your oral presentation

10:00-12:00 JST (3:00-5:00 CEST, 21:00-23:00 EDT, 18:00-20:00 PDT)

2nd preferred time slot for your oral presentation

13:00-15:00 JST (6:00-8:00 CEST, 0:00-2:00 EDT, 21:00-23:00 PDT)

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Session Classification: S: ILC application (to physics, material science, etc.)

Track Classification: Parallel sessions: Accelerators: Session S: ILC application (to physics, material science, etc.)