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**Electron-positron QED cascades in the collision of tightly focused lepton beams** DARIO DEL SORBO, SLAC National Accelerator Laboratory, FABRIZIO DEL GAUDIO, GoLP/Instituto de Plasmas e Fuso Nuclear, Instituto Superior Tcnico, Universidade de Lisboa, EDUARDO PAULO ALVES, HSUAN-GU CHOU, SLAC National Accelerator Laboratory, THOMAS GRISMAYER, WEN-LONG ZHANG, LUIS SILVA, GoLP/Instituto de Plasmas e Fuso Nuclear, Instituto Superior Tcnico, Universidade de Lisboa, WARREN MORI, UCLA, FREDERICO FIUZA, SLAC National Accelerator Laboratory — Electron-positron QED cascades are important in extreme astrophysical environments, such as pulsar magnetospheres, and are of fundamental interest in strong-field quantum electrodynamics. Recently, there has been a significant effort to study the conditions for the onset of pair cascades in the laboratory, using ultra-intense laser fields. We will present the results of QED-PIC simulations that show for the first time that QED cascades can also be studied in the head-on collision of tightly focused 10 GeV-class electron-positron beams. In the moderate disruption regime ( $D = 1 - 4$ ), these beams are strongly compressed during the interaction, leading to very large field amplification that can exceed the Schwinger field by a factor  $> 100$  in the frame of the beams, and to a QED cascade that reaches a multiplicity of 10. We have derived an analytical model and show that it is able to recover the cascade rate and saturation time as a function of the beam parameters.

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