Sensitivity of the FCC-ee to axion-like particles

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ABSTRACT: The electron-positron stage of the Future Circular Collider (FCC-ee) has incredible potential for particle physics. Not only does the clean collision environment at this stage allow for high-precision measurements, but it also allows for direct searches for new particles. The FCC-ee is preferred by the German particle physics community as the next flagship collider at CERN, and it is scheduled to operate with center-of-mass energies at the Z pole, the WW threshold, the ZH production maximum, and the tt threshold.

Axion-like particles (ALPs) are pseudoscalars that appear in many extensions of the Standard Model of particle physics, and they could potentially explain the nature of dark matter. We study ALPs at the FCC-ee. This talk will present the sensitivity of the FCC-ee to ALPs at all planned center-of-mass energies.