

Abstract Submitted
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Progress toward positron-electron pair plasma experiments J. STANJA¹, U. HERGENHAHN, H. NIEMANN, N. PASCHKOWSKI, T. SUNN PEDERSEN, H. SAITOH, E.V. STENSON, Max Planck Institute for Plasma Physics, CH. HUGENSCHMIDT, Technische Universität München, G.H. MARX, L. SCHWEIKHARD, Ernst Moritz Arndt University of Greifswald, J.R. DANIELSON, C.M. SURKO, University of California, San Diego — Matter-antimatter pair plasmas have been of great theoretical and astrophysical interest for a long time. A Positron-Electron Experiment (APEX) aims for the creation and study of such a plasma in the laboratory. It will be operated at the NEPOMUC facility which provides a cold and high-intensity positron beam. To achieve at least 10 Debye length within APEX's flux surfaces the beam needs to initially pass through several stages of manipulation. Presented here is an overview of work from the APEX team. Topics include $\vec{E} \times \vec{B}$ beam handling for separation into multiple beams in order to reduce the energy spread of the positron beam; injection and trapping of electrons in a prototype dipole field device with a permanent magnet; and design plans for the next generation of confinement device.

¹on behalf of the APEX/PAX team and collaborators

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