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Overview of recent results and next steps toward confined e+/e- pair plasma experiments E. V. STENSON, MPI for Plasma Physics, TU München, UC San Diego, J. HORN-STANJA, MPI for Plasma Physics, M. R. STONEKING, MPI for Plasma Physics, Lawrence U, U. HERGENHAHN, MPI for Plasma Physics, Fritz-Haber, S. NIßL, MPI for Plasma Physics, TU München, A. H. CARD, MPI for Plasma Physics, N. BELMORE, M. SINGER, T. SUNN PEDERSEN, MPI for Plasma Physics, U Greifswald, M. SINGER, M. DICKMANN, C. HUGENSCHMIDT, TU München, S. KÖNIG, U Greifswald, IPP, L. SCHWEIKHARD, U Greifswald, J. R. DANIELSON, C. M. SURKO, UC San Diego, H. SAITOH, U Tokyo — The trapping of small-λ_D electron-positron plasmas would enable novel laboratory studies of "pair plasmas", predicted to exhibit significant differences from electron-ion plasmas. To enable experimental tests of some of these predictions, the APEX (A Positron Electron eXperiment) collaboration is working toward the simultaneous confinement of electrons and positrons at plasma densities in toroidal magnetic traps. Experiments within the collaboration encompass a number of parallel efforts. These include development of new settings of the intense, reactor-based cold positron source NEPOMUC; construction and installation of several Penning-Malmberg traps, including a buffer gas trap system and a multicell trap; e+ and e- experiments in a prototype dipole trap based on a supported permanent magnet; and the design of two tabletop-sized, superconducting devices for confining the pair plasma: a levitated dipole and an optimized stellarator. This overview will report on the latest results and upcoming developments from the collaboration.

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