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Recent Searches for Hidden-Sector Particles with BABAR

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Many models of dark matter and hidden sectors predict new particles with masses below the electroweak scale. Low-energy electron-positron colliders such as BABAR are ideally suited to discover these hidden-sector particles. We present several recent BABAR searches for low-mass hidden-sector particles, including new searches for prompt and long-lived leptonically decaying hidden scalars produced in association with tau leptons. This search is sensitive to viable models that could account for the muon g-2 excess. We also present results a search for dark muonic forces, and for invisible particles produced in six-quark final states. These examples show the importance of B-factories in constraining and discovering new hidden-sector physics beyond the SM.

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