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Dark photons production in positron beam dump experiments via resonant e^+e^- annihilation

We explore the foreseeable sensitivity of the Frascati PADME experiment to searching, with the resonance annihilation technique, the 17 MeV dark photon invoked to explain the 8 Be anomaly in nuclear transitions. This involves a positron beam dump experiment where due to the continue loss of energy from soft photon bremsstrahlung in the first few radiation lengths of the dump, the positron beam can continuously scan for resonant production of new resonances via e^+ annihilation off an atomic e^- in the target.

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