

# Physics beyond the Standard Model with electromagnetic probes

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A number of puzzling astrophysics observations over the past decade pointed to a possibility of particles that can be either dark-matter candidates or mediators of forces between dark-matter particles. Existence of such particles can be probed with electron accelerators with MeV-GeV energies, and this possibility lead to establishing new research programs at major electron-accelerator laboratories.

After presenting an overview of the status of current and planned searches for the new particles beyond the Standard Model with particle accelerators, I will discuss new opportunities that can be provided by PRAE. In particular, I will discuss possible manifestations of photon- $A'$  mixing, bremsstrahlung of ALP-like particles above and below electron-positron threshold, as well as recently proposed use of near-threshold electronuclear reactions to search for dark-matter decay modes of a neutron.