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Yevgeny Stadnik (Johannes Gutenberg University of Mainz): New Laboratory and Astrophysical Probes for Low-Mass Dark Matter and Dark Bosons

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Low-mass bosonic dark matter particles produced after the Big Bang may form an oscillating classical field, which can be sought for in a variety of low-energy laboratory experiments based on spectroscopic, interferometric and magnetometric techniques, as well as in various astrophysical phenomena. Dark bosons can also mediate anomalous fifth forces between ordinary-matter particles that can be sought for in laboratory experiments. Recent measurements in atoms and astrophysical phenomena have already allowed us to improve on existing constraints on various non-gravitational interactions between dark bosons and ordinary-matter particles by many orders of magnitude.

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