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Experiment on study of dimuonium properties in Novosibirsk

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The project of the low-energy e^+e^- collider ($\mu\mu$tron) operating near the muon-pair production threshold is developed in BINP (Novosibirsk). The construction of the collider is planned to be started in 2019. The $\mu\mu$tron parameters and configuration (a luminosity of 8×10^{31} cm^{-2}c^{-1}, an center-of-mass energy spread of 400 keV, and beams collision with a large crossing angle) allow to perform experiments on study of dumuonium properties. The dimuonium is the $\mu^+\mu^-$ bound state that has not yet been observed. At $\mu\mu$tron it will be possible to detect about 40 thousand dimuonium atoms per year (10^7 s). In this report we describe the physics program of $\mu\mu$tron.

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