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Decay width of negative positronium ion MARIUSZ PUCHALSKI, ANDRZEJ CZARNECKI, University of Alberta, Edmonton, SAVELY KARSHENBOIM, Max Planck Inst. Quantenopt., Munich — We present a precise theoretical prediction for the decay width of the bound state of two electrons and a positron (a negative positronium ion). We include $O(\alpha^2)$ effects of hard virtual photons as well as soft corrections to the wave function and the decay amplitude. An outcome of a large-scale variational calculation, this is the first result for second-order corrections to a decay of a three-particle bound state. It will be tested experimentally in the new positronium-ion beam facility in Garching in Germany.

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