

Abstract Submitted  
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**Re-evaluating Claims of Discovery in Data from the ATOMKI 5 MV Van De Graaf Accelerator** BENJAMIN SHEFF, YURY KOLOMENSKY, Univ of California - Berkeley — Using the electron-positron pair spectrometer at the 5 MV Van de Graaff-accelerator at the Institute for Nuclear Research, Hungarian Academy of Sciences (ATOMKI), Krasznahorkay et al. recently announced data not fitting the Standard Model of particle physics. They claim a  $6.8 \sigma$  excess in internal pair creation at high relative angles for the particle pair released in the isoscalar transition, indicative of a particle of mass circa 16.7 MeV. A hypothetical gauge boson, a carrier of a fifth force, has been proposed as an explanation for the excess. We show that a more mundane explanation may lie in the presence of additional nonresonant decay amplitudes, such as  $\alpha$  decay of  ${}^8\text{Be}^*$ . The short time scale for this decay, and the additional dynamics of the four-body system make  ${}^8\text{Be}^* \rightarrow 2\alpha e^+ e^-$  decay a plausible candidate.

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