Abstract Submitted
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Low-frequency Bremsstrahlung for the Critical Geometry[1] N.L. MANAKOV, A.A. KRYLOVETSKY, S.I. MARMO, Voronezh State University, Russia, ANTHONY F. STARACE, University of Nebraska-Lincoln — The discrepancy between the experimental [1] and theoretical [2,3] results for the critical geometry, i.e., when $(\mathbf{e} \cdot \Delta\mathbf{p}) = 0$ (where $\mathbf{e}$ and $\Delta\mathbf{p}$ are the polarization vector and the transferred electron momentum), is analyzed for examples of one-photon and two-photon low- frequency Bremsstrahlung (BrS) in a Coulomb field. For this geometry, the well-known Kroll-Watson approximation yields a zero BrS cross section while no significant decrease of the BrS radiation intensity is observed in experiments [1]. We present an analytical expression for the low-frequency cross sections for one- and two-photon stimulated BrS for the $(\mathbf{e} \cdot \Delta\mathbf{p}) \approx 0$ - region and find them to be small (of the order of $x^2 \ln^2 x$, where $x = m\hbar\omega/p^2$ for the one-photon case) as compared to the cross section outside the critical geometry region. Thus our results are in accordance with those in Refs. [2,3] and disagree with Ref. [1]. [1] B. Walbank and J.K. Holmes, Phys. Rev. A **48**, R2515 (1993); [2] K.M. Dunseath and M. Terao-Dunseath, J. Phys. B **37**, 1305 (2004); [3] S. Hokland and L.B. Madsen, Eur. Phys. J. D **29**, 209 (2004).

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N. L. Manakov
Voronezh State University, Russia

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