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Recent BABAR studies of high-order radiation in ISR e+e− ⟶ μ+μ−γ and e+e− ⟶ π+π−γ events and their implications on data-driven hadronic vacuum polarization predictions of the muon g-2

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The BABAR collaboration has recently presented a dedicated measurement of additional radiation in ISR $e^+e^- \to \mu^+\mu^-\gamma$ and$e^+e^- \to \pi^+\pi^-\gamma$ events. Results are presented at next-to- and next-to-next-to-leading order, with one and two additional photons, respectively, for radiation from the initial and final states. Comparison with predictions from the PHOKHARA and AFKQED simulations, reveal discrepancies in the one-photon rates and angular distributions. While these discrepancies have a negligible effect on the BABAR measurement of hadronic cross section measurements, they may affect other measurements. The findings are presented in the quickly-evolving context of comparisons between experimental measurements of the muon $g-2$ and the theoretical predictions, including recent evolutions.

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