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Coherent-state superpositions in cavity quantum electrodynamics with trapped ions *(4 pages)* 065802
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COMMENTS

Comment on "Theoretical studies of the long-range Coulomb potential effect on photoionization by strong lasers" *(4 pages)* 067401
Jarosław Bauer

ERRATA

Erratum: Weyl-Wigner formalism for rotation-angle and angular-momentum variables in quantum mechanics [Phys. Rev. A **49**, 3255 (1994)] *(1 page)* . . . . . 069901(E)
João P. Bizarro