Abstract Submitted
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New Families of Coherent States for the Supersymmetric Oscillator[1] MORDECHAI KORNBLUTH, FREDY ZYPMAN, Yeshiva University, New York; Department of Physics — Supersymmetry is a viable theoretical framework to provide a unified picture of fermionic and bosonic fields. The subjacent supersymmetric algebra intrinsically transforms bosonic degrees of freedom into fermionic ones and vice-versa. Aside from physical realizations, the mathematical objects of supersymmetry (e.g. superspace, supertransformations) have proved fruitful for solving quantum problems based on the concept of partner Hamiltonians. The harmonic oscillator has been extensively studied in this context; a result of particular interest is the vanishing zero-point energy. The supercoherent states were first introduced 25 years ago [1], defined as eigenstates of a generalized annihilation operator that mixes fermionic and bosonic degrees of freedom. Here we extend that original annihilation operator to a family of complex 3-parameter annihilation operators. Our presentation shows the properties of those new operators as well as the properties of the corresponding eigenstates. In particular, after explicitly calculating the eigenstates in parameter space, we present a subspace with bounded uncertainty, for both the Heisenberg and entropic formulations of uncertainty. [1] Supercoherent States, C. Aragone and F. Zypman, Published in J. Phys. A 2267 (1986)

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