

**Sastry, Ramchander R.**

**Quantum mechanics of smeared particles.** (English) Zbl 1065.81506  
*J. Phys. A, Math. Gen.* 33, No. 46, 8305-8318 (2000).

Summary: We propose quantum mechanics of smeared particles that account for the delocalization of a particle defined via its Compton wavelength. The Hilbert space representation theory of such quantum mechanics is presented and its invariance under spatial translations and rotations is examined. The quantum mechanics of smeared particles is then applied to two paradigm examples, namely, the smeared harmonic oscillator and the Yukawa potential. In the second example, we theoretically predict the phenomenological coupling constant of the  $\omega$  meson, which mediates the short range and repulsive nucleon force, as well as the repulsive core radius.

**MSC:**

**81P05** General and philosophical questions in quantum theory  
**81Q99** General mathematical topics and methods in quantum theory

Cited in **1** Review  
Cited in **4** Documents

**Full Text:** [DOI](#) [arXiv](#)