

## Abstract

In the present paper we study the case of coupling harmonic oscillators in hadronic mechanics. The non-canonical commutation relations of position and momentum operators are reduced, by Fock representation, to the known relations of Q-algebra. In the general case:  $(A, A^+) = AA^+ - A^+QA$ , of a Lie-admissible algebra, where  $Q$  is an operator, we can define new Fock creation and annihilation operators, which describe some particles only under certain conditions, which must be fulfilled by the operator  $Q$ . When we have a simple hadronic harmonic oscillator, the  $Q$  is a scalar less than 1, and we have energetic saturation in eigenvalues spectrum. In this case the generalized uncertainty principle of Heisenberg is valid according to Santilli's theory. Finally, the coherent states of annihilation operator  $A$  are given and the Weyl displacement operator is generalized in Q-algebra.