

## natural population analysis (NPA)

The analysis of the electron density distribution in a molecular system based on the orthonormal natural atomic orbitals. Natural populations,  $n_i(A)$  are the occupancies of the natural atomic orbitals. These rigorously satisfy the Pauli exclusion principle:  $0 < n_i(A) < 2$ . The population of an atom  $n(A)$  is the sum of natural populations  $n(A) = \sum_A n_i(A)$ . A distinguished feature of the NPA method is that it largely resolves the basis set dependence problem encountered in the Mulliken population analysis method.

**Source:**

PAC, 1999, 71, 1919 (*Glossary of terms used in theoretical organic chemistry*) on page 1954