

Editorial comment: The published article is debatable on many issues. The reviewers had controversial opinion on the adequacy of the description by the proposed model of interatomic interactions and, obviously, the author needs to test, prove, and to compare a lot of things with the conventional quantum-chemical and other approaches, in particular, with the Pauli principle, etc. However, the editors think that placing the articles in the debate column will activate the discussion of the problems of the seemingly already established theory of the electronic structure of atom.

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Nature and mechanism of covalent bond formation

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Abstract

Proceeding from the understanding of the electronic structure of atoms, we proposed a theory of covalent bond, based on the modified model of the ring on the axis of the molecule. Analytical expressions have been obtained for the binding energy and ionization energy of hydrogen molecular ion, hydrogen molecule and the most characteristic diatomic molecules. Universal character of covalent bond has been established.

Content

Introduction

1. Atom as a basis for the formation of chemical bond
2. One-electron (covalent) bond
3. Two-electron covalent bond
4. Double and triple covalent bonds