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Improving the Invariant and Variable Components of Molecular Physics in School through Media

Ochildiyev Hasan Bahodir ugli

Termez State University, 1st year student of physics

Annotation*: Molecular physics is the study of the physical properties of molecules, the chemical bonds between atoms as well as the molecular dynamics. Its most important experimental techniques are the various types of spectroscopy; scattering is also used. The field is closely related to atomic physics and overlaps greatly with theoretical chemistry, physical chemistry and chemical physics. In addition to the electronic excitation states which are known from atoms, molecules exhibit rotational and vibrational modes whose energy levels are quantized.*

Keywords: Molecular, physic, frontal laboratory, methodological, invariant, variable, electrostatic potential, didactic, modeling, predictive, educational procces, frontal laboratory, practicum, observation, experiments, concepts

Introduction

Further the theory of improving methods of teaching physics development and development of appropriate teaching technologies, and ultimately the effectiveness of the educational process. To increase it, you need to do the following:

MAIN PART

- at different stages of teaching physical concepts to determine the psychological and didactic bases of formation and to them development of appropriate methodological recommendations, taking into account the activities of professors and students in this process;
- experimental bases of teaching physics: fundamental demonstration experiments, frontal laboratory studies, experiments and observations, practicums, research for those interested in physics teaching, using modern teaching aids wide use;
- assessment and systematization of students' knowledge use effective methods and knowledge and skills generalization; -skills and abilities of independent learning in the student.

The goals of atomic, molecular, and optical physics (AMO physics) are to elucidate the fundamental laws of physics, to understand the structure of matter and how matter evolves at the atomic and molecular levels, to understand light in all its manifestations, and to create new techniques and devices. AMO physics provides theoretical and experimental methods and essential data to neighboring areas of science such as chemistry, astrophysics, condensed-matter physics, plasma physics, surface science, biology, and medicine.

CONCLUSION

It is necessary to solve current methodological problems, such as formation. Methodology and physics teaching practice, the core of didactics based on the law of unity of winter and winter, the ‘learning process’ is the point of ‘unity’ between the learner and the learner should be considered in terms of. Therefore, given the connection between methodology and didactics, the methodology of teaching the subject is a special case of didactics they think. Therefore, any subject is a ‘teacher’ didactics, which is a key part of pedagogy must know the theory well. Because of any science to introduce innovations into the learning process, they first hence it needs to be reworked from a didactic point of view then they become ‘learning material’. Journal of Molecular Physics is an open access, peer reviewed journal that brings novel insights in studying various physical properties of molecules the chemical bonds between atoms as well as the molecular dynamics. The journal covers multidisciplinary aspects including but not limited atomic physics and overlaps greatly with theoretical chemistry, physical chemistry and chemical physics The molecular surface has been suggested to be a region of the molecule, where information of non-covalent intermolecular interactions is present. Many workers have pursued this idea by constructing models based on statistical parameters Φ extracted from the electrostatic potential on a particular molecular surface. We claim that a better approach is to define a family of equivalent molecular surfaces, each associated with a particular electron density ε. The demand that any model must give the same predictions on all such molecular surfaces yields a mathematical requirement restricting the space of permissible parameters. We prove that linear single-variable models of the form property = $\alpha \Phi + \beta$ will only yield invariant predictions if the parameter values of Φ computed on equivalent surfaces are linearly related. This claim is not restricted to the use of the electrostatic potential, but holds for any parameter extracted from the surface of molecules. By using a set of 44 molecules, we also demonstrate that a frequently used aspect of the electrostatic potential, that of ‘imbalance’ of negative and positive values, fails to satisfy the linearity requirement. It is argued that multi-variablemodels should only include parameters that satisfy the single-variable requirement.The arbitrary choice of the molecular surface has its pitfalls, especially in the context of modelling. While it is reasonable to define such a surface by regions of constant and small electron density, one is still left with having to choose a particular value. An essential question is how improbable the detection of an electron should be in order to be on the ‘surface’. We take the view that there must be many equivalent choices, all equally well suited to represent the surface.

In our consideration of imbalance and variation parameters, we have implicitly

assumed that the range of electron densities [0.0001 a.u., 0.0040 a.u.] adequately represents the molecular surface. This appears to be a valid assumption, given that the information contained in the variation parameters (Π, σ) and the skewness parameter (s') is preserved throughout the range of electron densities. Molecular physics is the study of the physical properties of molecules, the chemical bonds between atoms as well as the molecular dynamics. Its most important experimental techniques are the various types of spectroscopy; scattering is also used. The field is closely related to atomic physics and overlaps greatly with theoretical chemistry, physical chemistry and chemical physics. In conclusion we recommend that all molecular surface-based parameters should be checked for linearity, in sense of Equation, before being considered as a relevant quantity in linear modelling of physical and chemical properties. In these modelling efforts, better predictive power may be obtained by using model parameters that are invariant to the change of molecular surface. As a final remark, we emphasise that these considerations are not restricted to the use of the electrostatic potential, but remain valid for any parameter obtained from the surface of molecules. If it is not possible to specify the object of study or the structure itself exactly, the corresponding models are used. For example, heat and electric motors, hydraulic presses, reservoirs, pumps, cranes, etc. Ulami paints from various design details made for students. Such a model is made by participants of physical and technical circles.

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