

## SOME PUZZLES IN QUANTUM MECHANICS

Yu. V. Popov

Nuclear Physics Institute

Moscow State University

Moscow, 119992, Russia

e-mail: [popov@srd.sinp.msu.ru](mailto:popov@srd.sinp.msu.ru)

*(Received 12 October 2007; accepted 18 December 2007)*

### **Abstract**

Two fundamental problems of non-relativistic quantum mechanics are considered. These are the electromagnetic self-action of an atomic electron and the quantization of angular motion of electrons in a helium atom. The state of the art in the theory and experiment is briefly presented.