

**Report on the Ph.D. Thesis by M.V. Sedov**  
**“Simulation of characteristic X-ray radiation from a femtosecond laser plasma”**

The topic of the Thesis is relevant and timely. This is because X-ray sources, based on plasma produced by the interaction of high-intensity laser radiation with targets, are currently extensively studied in view of their civil applications (crystallography, materials science, biology), as well as defense applications.

The author developed and implemented advanced simulation algorithms for studying the dependence of the laser-plasma X-ray source on the parameters of the laser radiation and of the target. These simulation algorithms make possible calculating plasma radiation in K-alpha, He-alpha, and Ly-alpha using just a personal computer with an accuracy higher than the accuracy of existing simulation programs.

The obtained results are thoroughly justified and reliable. First, they have been comprehensively tested and calibrated from experimental measurements. Second, the results were published as 5 articles in refereed journals, so that they were approved by referees, who are top experts in this field.

The Thesis are written in a relatively good English. There are only minor inaccuracies such as omissions of “the” and “of” in some sentences. Just one example: the author wrote “...the dependence of the laser-plasma X-ray source on the parameters of laser radiation and target”, while it should have been “...the dependence of the laser-plasma X-ray source on the parameters of the laser radiation and of the target”. However, I emphasize that overall the English in the Thesis is good.

The Thesis completely satisfied the criteria established by the corresponding Regulations. In particular, the author quoted each and every source, from which he cited some results.

In summary, this is a very good, solid Ph.D. Thesis, which are at the level of not only Russian, but also world standards. The author definitely deserves to be awarded the Ph.D. degree.

If you have any further questions, please do not hesitate to contact me.



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