

Thesis Changes Log

Name of Candidate: Evgeny Iakovlev

PhD Program: Mathematics and Mechanics

Title of Thesis: Multiscale modeling of graphene nanobubbles

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Co-advisor: Dr. Petr Zhilyaev, Skoltech

The thesis document includes the following changes in answer to the external review process.

I have corrected typos and misprints, as was pointed out by Jury members. Please find the changes log below.

From Dr. Khestanova:

- 1) P.21: Also (,) this study explains that electron properties could differs (differ)
- 2) P.23: there is (a) suggested way
- 3) P.24: Newton's second laws (law) of motion is solving (solved) for each atom
- 4) P.25: but (the) most used method; The choose (choice) of the potential influence (influences) how realistic (realistically) is the system modelled (the system is modelled); Also (,) different potentials requires (require)
- 5) P.27: model systems with any atoms (atomic) configuration
- 6) P.28: the energies of the different cites (sites)
- 8) P.31: published in the (a) journal
- 9) P.32: The main result of this part is the observation of the (non) solid argon inside the (non) graphene nanobubbles at such pressures and temperatures, where argon has to be liquid; effect of the (non) confinement; The argon is shown to be at (is shown to have) the (non) close-packed hexagonal structure; scaling is approved (is confirmed)
- 10) P.64: developed in the previous section and applies (apply) it

Also, I added 3 references (p.15) on comment from Dr. Bandurin:

Dean, Cory R., et al. "Boron nitride substrates for high-quality graphene electronics." *Nature nanotechnology* 5.10 (2010): 722-726.

Dean, C., et al. "Graphene based heterostructures." *Solid State Communications* 152.15 (2012): 1275-1282.

Wang, Lei, et al. "One-dimensional electrical contact to a two-dimensional material." *Science*

342.6158 (2013): 614-617.