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# METHODS OF CONTROL OVER TWIST DRILL DIAMOND-LIKE COATING PARAMETERS

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## Abstract

We developed a method of control over diamond-like coating parameters. The method involves the analysis of the metrological characteristics, the choice of the optimal method for performance assessment. We carried out a number of measurements of the diamond-like sputtering on the check test piece and analyzed the errors that occur when running the nanoindenter

## Keywords

Diamond-like coating, control, nanoindentation

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## References

- [1] Komshin A.S., Syritskiy A.B. Metrological assurance of nanotechnology in the industrial conditions. *Nanoindzheneriya* [Nano Ingineering], 2014, no. 4, pp.14–19 (in Russ.).
- [2] Golovin Yu.I. Nanoindentirovanie i ego vozmozhnosti [Nanoindentation and its capabilities]. Moscow, Mashinostroenie Publ., 2009. 312 p. (in Russ.).
- [3] Wolf V., Richter A. The concept of differential hardness in depth sensing indentation. *New. J. Phys.*, 2003, vol. 5. URL: <http://iopscience.iop.org/article/10.1088/1367-2630/5/1/315> DOI: 10.1088/1367-2630/5/1/315
- [4] Novikov N.V., Dub S.N., Mil'man Yu.V., Gridieva I.V., Chugunova S.I. Primenenie metoda nanoindentirovaniya dlya izuchenija fazovogo prevrashcheniya poluprovodnik-metall v kremnii. *Sverkhtverdye materialy*, 1996, pp. 36–45.
- [5] Kogut L., Komvopoulos K. Analysis of the spherical indentation cycle for elastic perfectly plastic solids. *J. Mater. Res.*, 2004, vol. 19, no. 12. URL: <https://www.cambridge.org/core/journals/journal-of-materials-research/article/div-classtitleanalysis-of-the-spherical-indentation-cycle-for-elasticperfectly-plastic-solidsdiv/447A4D9FBBBCF0BF2F8985C7D3E794AC> DOI: 10.1557/JMR.2004.0468
- [6] ISO/CDIS 14577-1:2002. Metallic materials — instrumented indentation test for hardness and materials parameters. URL: [http://www.iso.org/iso/home/store/catalogue\\_ics/catalogue\\_detail\\_ics.htm?csnumber=30104](http://www.iso.org/iso/home/store/catalogue_ics/catalogue_detail_ics.htm?csnumber=30104) (accessed 10.12.2016).
- [7] Isaenkova M.G., Perlovich Yu.A., Golovin Yu.I. Ispol'zovanie nanoindentometra dlya otsenki mekhanicheskikh svoystv materialov: Laboratornyy praktikum [Using nanoindenter for assessment of material mechanical properties. Laboratory practicum]. Moscow, MEPHI Publ., 2008. 36 p. (in Russ.).

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