

Dina V. Dudina, Dr. Sci.

CURRICULUM VITAE



Surname: Dudina

First name: Dina

Gender: Female

Date of birth: 18 July 1979

Citizenship: Russia

Current position: Head of Laboratory of Synthesis of Composite Materials, Lavrentyev Institute of Hydrodynamics, Siberian Branch of Russian Academy of Sciences, Lavrentyev Ave. 15, Novosibirsk 630090, Russia

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Publications: indexed in Scopus – 114, indexed in Web of Science – 105

Total number of citations: 1001 (Scopus), 836 (Web of Science)

H-index: 17 (Scopus), 15 (Web of Science)

RESEARCH INTERESTS

Powder metallurgy, advanced sintering methods, microstructure-property relationships in metal and ceramic matrix composites, structure of interfaces in composite materials.

EDUCATION AND QUALIFICATIONS

- **Doctor of Sciences (Habilitation degree)**, 2018, Materials Engineering, Novosibirsk State Technical University, Russia
- **Candidate of Sciences (Ph.D.)**, 2004, Solid State Chemistry, Institute of Solid State Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia
- **Diploma of Engineer (with honors)**, 2001, Chemical Engineering of Inorganic Compounds (high-temperature and hard materials), Siberian State Industrial University, Novokuznetsk, Russia

PROFESSIONAL RECORD

- April 2018 – present: Head of Laboratory, Lavrentyev Institute of Hydrodynamics SB RAS, Novosibirsk, Russia
- July 2018 – August 2018: visiting associate professor, Institute for Materials Research, Tohoku University, Japan
- September 2017 – present: associate professor (courses taught: “Additive Manufacturing”, “Amorphous and Nanocrystalline Materials”), Novosibirsk State Technical University, Russia
- April 2015 – April 2018: senior scientist, Lavrentyev Institute of Hydrodynamics SB RAS, Novosibirsk, Russia
- October 2010 – April 2015: staff scientist, Institute of Solid State Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia
- November 2009 – February 2010: postdoctoral researcher, Universidade Federal de São Carlos, São Carlos, SP, Brazil
- October 2008 – June 2009: postdoctoral researcher, Science et Ingénierie des Matériaux et Procédés, Institut Polytechnique de Grenoble (INPG), France
- March 2008 – June 2008: full-time lecturer (courses taught: “Powder Metallurgy”, “Composite Materials”), School of Materials Science and Engineering, University of Ulsan, South Korea
- March 2007 – Feb 2008: postdoctoral researcher, Department of Chemical Engineering and Materials Science, University of California, Davis (UCD), USA
- 2005–2007: researcher, Institute of Solid State Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia
- 2001–2004: junior researcher and Ph.D. student, Institute of Solid State Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia

LANGUAGES

- English – Certificate of Proficiency in English (CPE), Level C2, Cambridge English Language Assessment, Certificate number 0049644256, date of issue 27/07/2015
- French – intermediate
- Russian – native

PhD ADVISER

At present, I am supervising 2 PhD students (PhD programs at Novosibirsk State Technical University and Institute of Solid State Chemistry and Mechanochemistry SB RAS).

EDITORIAL WORK

1. **Guest Editor:** Proceedings of the V International Conference “Fundamental Bases of Mechanochemical Technologies”, Materials Today: Proceedings, 2019,
<https://www.sciencedirect.com/journal/materials-today-proceedings/vol/12/part/P1>
2. **Guest Editor:** Materials, MDPI, Special Issues “Light-weight Metallic Materials”,
https://www.mdpi.com/journal/materials/special_issues/light_weight_metallic_materials
3. **Guest Editor:** Journal of Composites Science, MDPI, Special Issues “Advances in Synthesis, Structure and Properties of Metal Matrix Composites”,
https://www.mdpi.com/journal/jcs/special_issues/Metal_Matrix_Composites

INVITED TALKS

1. 11th International Conference on High-Performance Ceramics, 2019, Kunming, China, 2019
2. International Conference on Synthesis and Consolidation of Powder Materials, 2018, Chernogolovka, Russia
3. International Conference on Mechanochemistry and Mechanical Alloying, 2017, Kosice, Slovakia
4. Materials Science and Technology (MS&T), 2016, Salt Lake City, UT, USA

LIST OF KEY PUBLICATIONS

Book

1. E. A. Olevsky, D. V. Dudina, *Field-Assisted Sintering: Science and Applications*, Springer International Publishing, 2018, 425 p, 978-3-319-76031-5, 10.1007/978-3-319-76032-2, <https://link.springer.com/book/10.1007/978-3-319-76032-2#toc>

Book chapters

1. **D. V. Dudina**, B. B. Bokhonov, A. V. Ukhina, V. I. Mali, A. G. Anisimov, Spark plasma sintering of diamond- and nanodiamond-metal composites, In: *Spark Plasma Sintering of Materials: Advances in processing and applications*, Ed. P. Cavaliere, Springer International Publishing, 2019, pp. 441–457.
2. **D. V. Dudina**, I. S. Batraev, V. Yu. Ulianitsky Microstructure formation of particle-reinforced metal matrix composite coatings produced by thermal spraying. In: *Metal Matrix Composites: Materials, Manufacturing and Engineering*. Ed. J. Paulo Davim, De Gruyter, Berlin, Germany, ISBN 978-3-11-031544-8, 2014, pp.103–122.
3. **D. V. Dudina**, A. K. Mukherjee. Reactive Spark Plasma Sintering for the production of nanostructured materials. In: *Nanotechnology Series, vol.4: Nanomaterials and Nanostructures*, Eds. S.Sinha & N.K.Navani, Studium Press LLC, USA, ISBN 1-62699-004-2, 2013, pp. 237–264.
4. **D. V. Dudina**, K. Georgarakis, A. R. Yavari. Metal matrix composites reinforced with metallic glass particles: state of the art. In: *Metal Matrix Composites*, Ed. J. Paulo Davim, Nova Science Publishers, Inc., USA, ISBN 978-1-61209-771-8, 2012, pp.1–30.

Review articles

1. **D. V. Dudina**, B. B. Bokhonov, E. A. Olevsky, Fabrication of porous materials by Spark Plasma Sintering: A review, *Materials* 12 (2019) 541.
2. V. Yu. Ulianitsky, **D. V. Dudina**, A. A. Shtertser, I. Smurov, Computer-Controlled Detonation Spraying: Flexible control of the coating chemistry and microstructure, *Metals* 9 (2019) 1244.
3. M. S. Yurlova, V. D. Demenyuk, L. Yu. Lebedeva, **D. V. Dudina**, E. G. Grigoryev, E. A. Olevsky, Electric pulse consolidation: an alternative to spark plasma sintering, *Journal of Materials Science* 49 (2014) 952–985.
4. E. A. Olevsky, E. V. Aleksandrova, A. M. Ilyina, **D. V. Dudina**, A. N. Novoselov, K. Y. Pelve, E. G. Grigoryev, Outside mainstream electronic databases: Review of studies

conducted in the USSR and post-soviet countries on electric current-assisted consolidation of powder materials, *Materials* 6 (2013) 4375–4440.

Articles in peer-reviewed journals

1. B. B. Bokhonov, **D. V. Dudina**, H. Kato, T. Wada, Selective deposition of platinum hemispheres on the {100} facets of synthetic diamond, *Diamond & Related Materials* 101 (2020) 107620.
2. **D. V. Dudina**, T. M. Vidyuk, M. A. Korchagin, A. I. Gavrilov, N. V. Bulina, M. A. Esikov, M. Datekyu, H. Kato, Interaction of a Ti–Cu alloy with carbon: Synthesis of composites and model experiments, *Materials* 12 (2019) 1482.
3. I. D. Kuchumova, I. S. Batraev, V. Yu. Ulianitsky, A. A. Shtertser, K. B. Gerasimov, A. V. Ukhina, N. V. Bulina, I. A. Bataev, G. Y. Koga, Y. Guo, W. J. Botta, H. Kato, T. Wada, B. B. Bokhonov, **D. V. Dudina**, A. Moreira Jorge Jr., Formation of metallic glass coatings by detonation spraying of a Fe₆₆Cr₁₀Nb₅B₁₉ powder, *Metals* 9 (2019) 846.
4. **D. V. Dudina**, M. A. Korchagin, A. I. Gavrilov, N. V. Bulina, I. S. Batraev, M. A. Esikov, K. Georgarakis, H. Kato, Formation of TiC-Cu nanocomposites by a reaction between Ti₂₅Cu₇₅ melt-spun alloy and carbon, *Materials Letters* 235 (2019) 104–106.
5. O. L. Khasanov, E. S. Dvilis, E. F. Polisadova, S. A. Stepanov, D.T.Valiev, V. D. Paygina, **D.V. Dudina**, The influence of intense ultrasound applied during pressing on the optical and cathodoluminescent properties of conventionally sintered YSZ ceramics, *Ultrasonics Sonochemistry* 50 (2019) 166-171.
6. B. B. Bokhonov, A. A. Matvienko, K. B. Gerasimov, **D. V. Dudina**, Formation of ordered nanocrystalline CeO₂ structures during thermal decomposition of cerium formate Ce(HCOO)₃, *Ceramics International* 45 (2019) 19684–19688.
7. M. A. Korchagin, S. E. Gabdrashova, **D. V. Dudina**, B. B. Bokhonov, N. V. Bulina, V. L. Kuznetsov, A. V. Ishchenko, Combustion characteristics and structure of carbon nanotube/titanium composites, *Journal of Thermal Analysis and Calorimetry* 137 (2019) 1903–1910.
8. B. B. Bokhonov, M. A. Korchagin, A. V. Ukhina, **D. V. Dudina**, Structural and morphological transformations in cobalt-carbon mixtures during ball milling, annealing and Spark Plasma Sintering, *Vacuum* 157 (2018) 210–215.
9. M. A. Korchagin, **D. V. Dudina**, B. B. Bokhonov, N. V. Bulina, A. V. Ukhina, I. S. Batraev, Synthesis of nickel boride by thermal explosion in ball-milled powder mixtures, *Journal of Materials Science* 53 (2018) 13592–13599.

10. V. Yu. Ulianitsky, I. S. Batraev, A. A. Shtertser, **D. V. Dudina**, N. V. Bulina, I. Smurov, Detonation spraying behaviour of refractory metals: Case studies for Mo and Ta-based powders, *Advanced Powder Technology* 29 (2018) 1859–1864.
11. **D. V. Dudina**, A. A. Matvienko, A. A. Sidelnikov, M. A. Legan, V. I. Mali, M. A. Esikov, A. G. Anisimov, P. A. Gribov, V. V. Boldyrev, Electric current-assisted joining of copper plates using silver formed by in-situ decomposition of $\text{Ag}_2\text{C}_2\text{O}_4$, *Metals* 8 (2018) 538.
12. S. F. Tikhov, K. R. Valeev, A. N. Salanov, S. V. Cherepanova, N. N. Boldyreva, V. I. Zaikovskii, V. A. Sadykov, **D. V. Dudina**, O. I. Lomovsky, V. E. Romanenkov, E. E. Pyatsyushik, Phase formation during high-energy ball milling of the 33Al-45Cu-22Fe (at.%) powder mixture, *Journal of Alloys and Compounds* 736 (2018) 289–296.
13. A. V. Ukhina, **D. V. Dudina**, D. A. Samoshkin, E. N. Galashov, I. N. Skovorodin, B. B. Bokhonov, Effect of the surface modification of synthetic diamond with nickel or tungsten on the properties of copper–diamond composites, *Inorganic Materials* 54 (2018) 426–433.
14. V. Ulianitsky, I. Batraev, **D. Dudina**, I. Smurov. Enhancing the properties of WC/Co detonation coatings using two-component fuels, *Surface and Coatings Technology*, 318 (2017) 244–249.
15. Nguyen Thi Hoang Oanh, Nguyen Hoang Viet, Ji-Soon Kim, **D. V. Dudina**, Structural Investigations of TiC–Cu Nanocomposites prepared by ball milling and Spark Plasma Sintering, *Metals* 7 (2017) 123–128.
16. B. B. Bokhonov, **D. V. Dudina**, Preparation of porous materials by Spark Plasma Sintering: Peculiarities of alloy formation during consolidation of Fe@Pt core-shell and hollow Pt(Fe) particles, *Journal of Alloys and Compounds* 707 (2017) 233–237.
17. N. V. Bulina, M. V. Chaikina, I. Yu. Prosanov, **D. V. Dudina**, L. A. Solovyov, Fast synthesis of La-substituted apatite by the dry mechanochemical method and analysis of its structure, *Journal of Solid State Chemistry* 252 (2017) 93–99.
18. Nguyen Thi Hoang Oanh, Nguyen Hoang Viet, **D. V. Dudina**, Alberto Moreira Jorge Jr, Ji-Soon Kim. Structural characterization and magnetic properties of $\text{Al}_{18}\text{Fe}_{16}\text{TM}_2$ (TM: Ti, Ni, Cu) alloys prepared by mechanical alloying, *Journal of Non-Crystalline Solids* 468 (2017) 67–73.
19. **D. V. Dudina**, A.V. Ukhina, B. B. Bokhonov, M. A. Korchagin, N. V. Bulina, H. Kato, The influence of the formation of Fe_3C on graphitization in a carbon-rich iron-amorphous carbon mixture processed by Spark Plasma Sintering and annealing, *Ceramics International* 43 (2017) 11902–11906.

20. B. B. Bokhonov, A. V. Ukhina, **D. V. Dudina**, H. Katsui, T. Goto, H. Kato, Multiwalled carbon nanotube forests grown on the surface of synthetic diamond crystals, *Ceramics International* 43 (2017) 10606–10609.
21. **D. V. Dudina**, B. B. Bokhonov, Elimination of oxide films during Spark Plasma Sintering of metallic powders: A case study using partially oxidized nickel, *Advanced Powder Technology* 28 (2017) 641–647.
22. **D. V. Dudina**, B. B. Bokhonov, M. A. Legan, A. N. Novoselov, I. N. Skovorodin, N. V. Bulina, M. A. Esikov, V. I. Mali, Analysis of the formation of FeAl with a high open porosity during electric current-assisted sintering of loosely packed Fe-Al powder mixtures, *Vacuum* 146 (2017) 74–78.
23. B. B. Bokhonov, **D. V. Dudina**, Synthesis of ZrC and HfC nanoparticles encapsulated in graphitic shells from mechanically milled Zr-C and Hf-C powder mixtures, *Ceramics International* 43 (2017) 14529–14532.
24. **D. V. Dudina**, M. A. Legan, N. V. Fedorova, A. N. Novoselov, A. G. Anisimov, M. A. Esikov, Structural and mechanical characterization of porous iron aluminide FeAl obtained by pressureless Spark Plasma Sintering, *Materials Science. & Engineering A* 695 (2017) 309–314.
25. **D. V. Dudina**, B. B. Bokhonov, A. K. Mukherjee. Formation of aluminum particles with shell morphology during pressureless Spark Plasma Sintering of Fe-Al mixtures: current-related or Kirkendall effect? *Materials* 9 (2016) 375.
26. Z. Wang, K. Georgarakis, K. Nakayama, Y. Li, A. Tsarkov, G. Xie, **D. Dudina**, D. Louzguine, A. R. Yavari, Microstructure and mechanical behavior of metallic glass fiber-reinforced Al alloy matrix composites, *Scientific Reports* 6 (2016) Article number 24384.
27. **D. V. Dudina**, B. B. Bokhonov, A. V. Ukhina, A. G. Anisimov, V. I. Mali, M. A. Esikov, I. S. Batraev, O. O. Kuznechik, L. P. Pilinevich, Reactivity of materials towards carbon of graphite foil during Spark Plasma Sintering: A case study using Ni–W powders, *Materials Letters* 168 (2016) 62–67.
28. **D. V. Dudina**, B. B. Bokhonov, A. K. Mukherjee, Network distribution of reinforcements in composites produced by sintering: microstructure formation and influence on consolidation behavior and properties, *Journal of the Ceramic Society of Japan* 124 (2016) 289–295.
29. V. Yu. Ulianitsky, **D. V. Dudina**, I. S. Batraev, D. K. Rybin, N. V. Bulina, A. V. Ukhina, B. B. Bokhonov, The influence of the in-situ formed and added carbon on the formation of metastable Ni-based phases during detonation spraying, *Materials Letters* 181 (2016) 127–131.

30. **D. V. Dudina**, G. A. Pribytkov, M. G. Krinitcyn, M. A. Korchagin, N. V. Bulina, B. B. Bokhonov, I. S. Batraev, D. K. Rybin, V. Yu. Ulianitsky. Detonation spraying behavior of TiC_x -Ti powders and the role of reactive processes in the coating formation. *Ceramics International* 42 (2016) 690–696.
31. B. B. Bokhonov, A. V. Ukhina, **D. V. Dudina**, A. G. Anisimov, V. I. Mali, I. S. Batraev, Carbon uptake during Spark Plasma Sintering: investigation through the analysis of the carbide “footprint” in a Ni–W alloy, *RSC Advances* 5 (2015) 80228–80237.
32. **D. V. Dudina**, A. G. Anisimov, V. I. Mali, N. V. Bulina, B. B. Bokhonov, Smaller crystallites in sintered materials? A discussion of the possible mechanisms of crystallite size refinement during pulsed electric current-assisted sintering, *Materials Letters* 144 (2015) 168–172.
33. K. Georgarakis, **D. V. Dudina**, V. I. Mali, A. G. Anisimov, N. V. Bulina, A. Moreira Jorge Jr., A. R. Yavari, Crystallization of $Fe_{83}B_{17}$ amorphous alloy by electric pulses produced by a capacitor discharge, *Applied Physics A* 120 (2015) 1565–1572.
34. B. B. Bokhonov, A. V. Ukhina, **D. V. Dudina**, K. B. Gerasimov, A. G. Anisimov, V. I. Mali, Towards a better understanding of nickel/diamond interactions: the interface formation at low temperatures, *RSC Advances* 5 (2015) 51799–51806.
35. A. V. Ukhina, **D. V. Dudina**, A. G. Anisimov, V. I. Mali, N. V. Bulina, I. A. Bataev, I. N. Skovorodin, B. B. Bokhonov, Porous electrically conductive materials produced by Spark Plasma Sintering and hot pressing of nanodiamonds, *Ceramics International* 41 (2015) 12459–12463.
36. B. B. Bokhonov, **D. V. Dudina**, A. V. Ukhina, M. A. Korchagin, N. V. Bulina, V. I. Mali, A. G. Anisimov, Formation of self-supporting porous graphite structures by Spark Plasma Sintering of nickel-amorphous carbon mixtures, *Journal of Physics and Chemistry of Solids* 76 (2015) 192–202.
37. **D. V. Dudina**, O. I. Lomovsky, S. F. Tikhov, K. R. Valeev, N. N. Boldyreva, A. N. Salanov, S. V. Cherepanova, V. I. Zaikovskii, A. Andreev, O. B. Lapina, V. A. Sadykov, Phase formation during early stages of mechanical alloying of Cu-13wt.%Al powder mixtures in a high-energy ball mill, *Journal of Alloys and Compounds* 629 (2015) 343–350.
38. **D. V. Dudina**, I. S. Batraev, V. Y. Ulianitsky, M. A. Korchagin, Possibilities of the Computer-Controlled Detonation Spraying method: a chemistry viewpoint, *Ceramics International* 40 (2014) 3253–3260.

39. **D. V. Dudina**, A. K. Mukherjee, Reactive Spark Plasma Sintering: successes and challenges of nanomaterial synthesis, *Journal of Nanomaterials* (2013) article ID 625218, 12 p.
40. B. B. Bokhonov, **D. V. Dudina**, Recrystallisation-accompanied phase separation in Ag–Fe and Ag–Ni nanocomposites: a route to structure tailoring of nanoporous silver, *RSC Advances* 3 (2013) 12655–12661.
41. **D.V. Dudina**, V. I. Mali, A. G. Anisimov, N. V. Bulina, M. A. Korchagin, O. I. Lomovsky, I. A. Bataev, V. A. Bataev, Ti₃SiC₂-Cu composites by mechanical milling and Spark Plasma Sintering: possible microstructure formation scenarios, *Metals Materials International* 19 (2013) 1235–1241.
42. **D. V. Dudina**, M. A. Korchagin, S. B. Zlobin, V. Yu. Ulianitsky, O. I. Lomovsky, N.V. Bulina, I. A. Bataev, V. A. Bataev, Compositional variations in the coatings formed by detonation spraying of Ti₃Al at different O₂/C₂H₂ ratios, *Intermetallics* 29 (2012) 140–146.
43. **D. V. Dudina**, K. Georgarakis, Y. Li, M. Aljerf, M. Braccini, A. R. Yavari, A. Inoue, Cu-based metallic glass particle additions to significantly improve overall compressive properties of an Al alloy, *Composites Part A* 41 (2010) 1551–1557.
44. **D. V. Dudina**, K. Georgarakis, Y. Li, M. Aljerf, A. LeMoulec, A.R. Yavari, A. Inoue, A magnesium alloy matrix composite reinforced with metallic glass, *Composites Science and Technology* 69 (2009) 2734–2736.
45. D. M. Hulbert, D. Jiang, **D. V. Dudina**, A. K. Mukherjee, The synthesis and consolidation of hard materials by Spark Plasma Sintering, *International Journal of Refractory Metals and Hard Materials* 27 (2009) 367–375.
46. **D. V. Dudina**, D. M. Hulbert, D. Jiang, C. Unuvar, S. J. Cytron, A. K. Mukherjee, In-situ boron carbide-titanium diboride composites prepared by mechanical milling and subsequent Spark Plasma Sintering, *Journal of Materials Science* 43 (2008) 3569–3576.
47. D. M. Hulbert, A. Anders, **D. V. Dudina**, J. Andersson, D. Jiang, C. Unuvar, U. Anselmi-Tamburini, E. J. Lavernia, A. K. Mukherjee, The absence of plasma in “Spark Plasma Sintering”, *Journal of Applied Physics* 104 (2008) 033305.
48. J. S. Kim, Y. S. Kwon, O. I. Lomovsky, **D. V. Dudina**, V. F. Kosarev, S. V. Klinkov, D. H. Kwon, I. Smurov, Cold spraying of in situ produced TiB₂-Cu nanocomposite powders, *Composites Science and Technology* 67 (2007) 2292–2296.
49. M. A. Korchagin, **D. V. Dudina**, Application of self-propagating high-temperature synthesis and mechanical activation for obtaining nanocomposites, *Combustion, Explosion and Shock Waves* 43 (2007) 176–187.

50. O. I. Lomovsky, V. I. Mali, **D. V. Dudina**, M. A. Korchagin, A. G. Anisimov, G. A. Shevetsov, V. V. Boldyrev, J. S. Kim, Y. S. Kwon, Preparation and electrical erosion resistance of TiB₂/Cu nanocomposites, *Inorganic Materials* 42 (2006) 739–743.
51. J. S. Kim, Y.-S. Kwon, O. I. Lomovsky, M. A. Korchagin, V. I. Mali, **D. V. Dudina**, A synthetic route for metal-ceramic interpenetrating phase composites, *Materials Letters* 60 (2006) 3723–3726.
52. J.-S. Kim, Y.-S. Kwon, D. V. Dudina, O. I. Lomovsky, M. A. Korchagin, V. I. Mali. Nanocomposites TiB₂-Cu: consolidation and erosion behavior, *Journal of Materials Science* 40 (2005) 3491–3495.
53. Y. S. Kwon, **D. V. Dudina**, M. A. Korchagin, O.I.Lomovsky, Microstructure changes in TiB₂-Cu nanocomposite under sintering, *Journal of Materials Science* 39 (2004) 5325–5331.
54. **D. V. Dudina**, O. I. Lomovsky, M. A. Korchagin, V. I. Mali. Reactions in a metal matrix: synthesis and properties of TiB₂-Cu nanocomposites, *Chemistry for Sustainable Development* 12 (2004) 319–325.

Patents

1. RF Patent 2517121 –21.08.2012
2. RF Patent 2532407 –12.09.2013

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