Denis Gokhfeld

Senior Researcher, Kirensky Institute of Technology

Birth date: July 13, 1977

Education:

- 2019 Doctor of Science in Condensed Matter Physics (thesis «Magnetic hysteresis and critical current density of inhomogeneous superconductors in high magnetic fields») at Kirensky Institute of Physics, Krasnoyarsk, Russia.
- 2004 Ph.D. at Kirensky Institute of Physics.
- 2003 Governmental grant, research assistant in Professor Reiner Kümmel's group, Institute for Theoretical Physics and Astrophysics of the Würzburg University, Germany
- 2000 M.Sc at Reshetnev Siberian State Aerospace University, Krasnoyarsk, Russia

Research Experience:

Study of the magnetic and transport properties of low and high-Tc superconductors.

Critical state model for HTS.

Analysis of the critical current density and circulation scale of currents.

Modelling of vortex configurations and magnetization hysteresis loops of inhomogeneous superconductors.

The magnetization and currents in textured HTS and porous superconductors.

The magnetization of materials with different magnetic subsystems.

Publications (2017-2022):

1. Gokhfeld D.M., Semenov S.V., Balaev D.A., Yakimov I.S., Dubrovskiy A.A., Terentyev K.Yu., Freydman A.L., Krasikov A.A., Petrov M.I., Establishing of peak effect in YBCO by Nd substitution // JMMM. – 2017. – Vol. 440. – P. 127-128. https://doi.org/10.1016/j.jmmm.2016.12.089
2. Gokhfeld D.M., Balaev D.A., Yakimov I.S., Petrov M.I., Semenov S.V., Tuning the peak effect in the $Y_{1-x}Nd_xBa_2Cu_3O_{7-\delta}$ compound // Ceram. Int. – 2017. – Vol. 43. – No. 13. – P. 9985-9991. https://doi.org/10.1016/j.ceramint.2017.05.011
3. Koblischka M.R., Gokhfeld D.M., Chang C., Hauet T., Hartmann U., Pinning force scaling of electrospun Bi-2212 nanowire networks // Solid State Commun. – 2017. – Vol. 264. – P. 16-18. http://dx.doi.org/10.1016/j.ssc.2017.07.002
4. Zeng XL, Karwoth T., Koblischka M.R., Hartmann U., Gokhfeld D.M., Chang C., Hauet T., Analysis of magnetization loops of electrospun nonwoven superconducting fabrics // Phys. Rev. Materials – 2017. – Vol. 1. – No. 4. – P. 044802 (8pp). https://doi.org/10.1103/PhysRevMaterials.1.044802
5. Gokhfeld D.M. Magnetization of polycrystalline high-Tc superconductors // High-Temperature Superconductors: Occurrence, Synthesis and Applications. – Ed. M. Miryala and M.R. Koblischka. – (New York: Nova Science). – 2018. – P. 181-194.
6. Gokhfeld D.M. Use of a sigmoid function to describe second peak in magnetization loops // J. Supercond. Novel Magn. – 2018. – Vol. 31. – No. 6. – P. 1785–1789. https://doi.org/10.1007/s10948-017-4400-2
7. Gokhfeld D.M. Analysis of superconductor magnetization hysteresis // Journal of Siberian Federal University. Mathematics & Physics – 2018. – Vol. 11. – No. 2. – P. 219–221.
8. Lepeshev A.A., Patrin G.S., Yurkin G.Yu., Vasiliev A.D., Nemtsev I.V., Gokhfeld D.M., Balaev A.D., Demin V.G., Bachurina E.P., Karpov I.V., Ushakov A.V., Fedorov L.Yu., Irtyugo L.A., Petrov M.I. Magnetic Properties and Critical Current of Superconducting Nanocomposites $(1-x)YBa_2Cu_3O_{7-\delta} + xCuO$ // J. Supercond. Novel Magn. – 2018. – Vol. 31. – No. 12. – P. 3841–3845. https://doi.org/10.1007/s10948-018-4676-x
9. Bykov A.A., Terent'ev K.Yu., Gokhfeld D.M., Savitskaya N.E., Popkov S.I., Petrov M.I. Superconductivity on Interfaces of Nonsuperconducting Granules La_2CuO_4 and $La_{1.56}Sr_{0.44}CuO_4$ // J. Supercond. Novel Magn. – 2018. – Vol. 31. – No. 12. – P. 3867–3874. https://doi.org/10.1007/s10948-018-4668-x
10. Gokhfeld D.M. The circulation radius and critical current density in type-II superconductors // Tech. Phys. Lett. – 2019. – V. 45. – № 2. – P. 1-3. https://doi.org/10.1134/S1063785019010243
11. Koblischka M.R., Kumar Naik S.P., Koblischka-Veneva A., Murakami M, Gokhfeld D.M., Reddy E.S., Schmitz G.J. Superconducting YBCO Foams as Trapped Field Magnets // Materials. – 2019. – Vol. 12. – No. 6. – P. 853 (15pp). https://doi.org/10.3390/ma12060853
12. Ushakov A.V., Karpov I.V., Lepeshev A.A., Petrov M.I., Fedorov L.Yu., Gokhfel'd D.M., Zharkov S.M., Zeer G.M., Demin V.G., Abkaryan A.K. The Influence of CuO Dopant

Nanoparticles, Prepared via the Arc Plasma Synthesis Method, on the Critical Current of $YBa_2Cu_3O_{7-\delta}$ Composites // Inorg. Mater. Appl. Res. – 2019. – Vol. 10. – No. 4. – P. 999-1002. https://doi.org/10.1134/S2075113319040439

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14. Gokhfeld D.M., Popkov S.I., Bykov A.A. Analog of the intertype superconductivity in nanostructured materials // Physica C. – 2019. – Vol. 566. – P. 1353526 (4pp). https://doi.org/10.1016/j.physc.2019.1353526
15. Koblischka M.R., Koblischka-Veneva A., Pavan Kumar Naik S., Gokhfeld D.M., Murakami M. Porous high-Tc superconducting cuprates: Advantages and applications // J. Phys. Conf. Ser. – 2019. – Vol. 1293. – No. 1. – 012009 (9pp). https://doi.org/10.1088/1742-6596/1293/1/012009
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17. Koblischka M.R., Pavan Kumar Naik S., Koblischka-Veneva A., Gokhfeld D.M., Murakami M. Flux creep after field trapping in $YBa_2Cu_3O_x$ foams // Supercond. Sci. Technol. – 2020. – Vol. 33. – No. 4. – P. 044008 (8pp). https://doi.org/10.1088/1361-6668/ab72c3
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19. Gokhfeld D.M., Balaev D.A. Magnetization anisotropy in the textured Bi-2223 HTS in strong magnetic fields // Physics of the Solid State. – 2020. – V. 62. – № 7. – P. 1145-1149. https://doi.org/10.1134/S1063783420070069
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24. Semenov SV, Gokhfeld DM, Terent'ev K Yu, Balaev DA. Mechanisms of the Magnetoresistance Hysteresis in a Granular HTS with the Paramagnetic Contribution by the Example of $HoBa_2Cu_3O_{7-\delta}$ // Physics of the Solid State. – 2021. – V. 63. – № 10. – P. 1785–1794. https://doi.org/10.1134/S1063783421100334
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