

# Сверхпроводящие циклотроны для медицинских применений и методы их проектирования

С.Б. Ворожцов, В.Л. Смирнов

- [1] V. L. Smirnov, “Computer modeling of a compact isochronous cyclotron”, *Physics of Particles and Nuclei*, 2015, Vol. 46, No. 6, pp. 940–955.
- [2] V. Smirnov, “Computer codes for beam dynamics analysis of cyclotronlike accelerators”, *Physical Review Accelerators and Beams* 20, 124801 (2017).
- [3] В. Л. Смирнов, “Проектирование центральной зоны компактного циклотрона”, *Письма в ЭЧАЯ*, Т. 16, № 1, 2019, с. 40-55.
- [4] V. L. Smirnov, S. B. Vorozhtsov, and J. Vincent, “H– Superconducting cyclotron for PET isotope production”, *Physics of Particles and Nuclei Letters*, 2014, Vol. 11, No. 6, pp. 774–787.
- [5] V. Smirnov, S. Vorozhtsov, J. Vincent, “Design study of an ultra-compact superconducting cyclotron for isotope production”, *Nuclear Instruments and Methods in Physics Research A* 763 (2014) 6–12.
- [6] V. Smirnov, S. Vorozhtsov, X. Wu, and J. Vincent, “Innovative 20-MeV superconducting cyclotron for medical applications”, *Physics of Particles and Nuclei Letters*, 2019, Vol. 16, No. 6, pp. 899–906.
- [7] V. L. Smirnov and S. B. Vorozhtsov, “Magnetic system of a superconducting separated-sector cyclotron for hadron therapy”, *Physics of Particles and Nuclei Letters*, 2017, Vol. 14, No. 4, pp. 658–668.
- [8] V. L. Smirnov and S. B. Vorozhtsov, “Feasibility study of a cyclotron complex for hadron therapy”, *Nuclear Inst. and Methods in Physics Research*, A 887 (2018) 114–121.
- [9] V. Smirnov, S. Vorozhtsov, F. Taft, T. Matlocha, “Superconducting 70 AMeV cyclotron-injector for a hadron therapy complex”, *Nuclear Inst. and Methods in Physics Research*, A 934 (2019) 1–9.
- [10] V. Smirnov and S. Vorozhtsov, “Modern compact accelerators of cyclotron type for medical applications”, *Physics of Particles and Nuclei*, 2016, Vol. 47, No. 5, pp. 863–883.
- [11] V. Smirnov, S. Vorozhtsov, X. Wu, D. Alt, G. Blosser, G. Horner, J. Paquette, N. Usher, J. Vincent, and Z. Neville, “Experimental validation of the field and beam dynamics simulations for a superconducting cyclotron”, *Physics of Particles and Nuclei Letters*, 2020, Vol. 17, No. 2, pp. 204–210.