

MATHEMATICAL LIFE

Vasilii Mikhailovich Babich (on his 90th birthday)

On 13 June 2020 the prominent mathematician and expert in mechanics, head of the St. Petersburg school in the theory of diffraction and wave propagation Vasilii Mikhailovich Babich observed his 90th birthday. He is the author of many now classical results on the structure of high-frequency asymptotics of solutions of various problems in mathematical physics. The pioneering works in which he developed the ray method for elastic body and surface waves are particularly notable, as are his asymptotic constructions of localized solutions of linear partial differential equations, which have found many applications, and also a series of his papers justifying formulae for high-frequency asymptotics.



Babich is an Honoured Scientist of the Russian Federation (2010). His achievements have been marked by the USSR State Prize, which he received together with A. S. Alekseev, V. S. Buldyrev, I. A. and L. A. Molotkov, G. I. Petrashen, and T. B. Yanovskaya for the development of the ray method (1982), the V. A. Fock prize of the Russian Academy of Sciences for the development of asymptotic methods in diffraction theory (1998), and the prize “A Life Devoted to Mathematics” of the Dynasty Foundation (2014).

In previous issues of this journal there are tributes on the occasions of his 70th and 80th birthdays¹ to Babich’s research, teaching, and organizational activities in science. A. P. Kiselev and V. P. Smyshlyaev analysed his role in the development of the St. Petersburg school of the theory of diffraction and wave propagation in the paper “The 70th birthday of V. M. Babich” (*Zap. Nauchn. Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov. (POMI)* **275** (2001), 9–16).²

Babich continues to do fruitful research in mathematical physics; in particular, he works on the theory of complex interference waves [1], [2]. In recent years he

¹See *Russian Math. Surveys* **57**:3 (2002), 627–635, and **66**:1 (2011), 205–208.

²Translated in *J. Math. Sci. (N.Y.)* **117**:2 (2003), 3891–3894.

AMS 2020 Mathematics Subject Classification. Primary 01A70.

has published (with his students) monographs on diffraction in corner domains [3] and on the high-frequency theory of elastic waves [4].

We wish Vasilii Mikhailovich good health and further successes in his research.

*M. I. Belishev, S. Yu. Dobrokhotov, I. A. Ibragimov, A. P. Kiselev,
S. V. Kislyakov, M. A. Lyalinov, Yu. V. Matiyasevich, V. G. Romanov,
V. P. Smyshlyaev, T. A. Suslina, and N. N. Ural'tseva*

Main recent publications of V. M. Babich

- [1] V. M. Babich, “The localization principle and high-frequency asymptotics of an interference head wave”, *Mathematical questions in the theory of wave propagation*. 47, Zap. Nauchn Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov. (POMI), vol. 461, St. Petersburg Department of Steklov. Math. Inst., St. Petersburg 2017, pp. 7–13; English transl. in *J. Math. Sci. (N.Y.)* **238**:5 (2019), 561–565.
- [2] V. M. Babich and A. A. Matskovskiy, “An interference head wave (Buldyrev’s wave) and localization principle”, *Mathematical questions in the theory of wave propagation*. 45, Zap. Nauchn Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov. (POMI), vol. 438, St. Petersburg Department of Steklov. Math. Inst., St. Petersburg 2015, pp. 36–45; English transl. in *J. Math. Sci. (N.Y.)* **224**:1 (2017), 20–26.
- [3] V. M. Babich, M. A. Lyalinov, and V. E. Grikurov, *Diffraction theory. The Sommerfeld–Malyuzhinets technique*, Alpha Science, Oxford 2008, 228 pp.
- [4] V. M. Babich and A. P. Kiselev, *Elastic waves. High frequency theory*, BHV-Peterburg, St. Petersburg 2014, 320 pp.; English transl., Monogr. Res. Notes Math., CRC Press, Boca Raton, FL 2018, xix+285 pp.

Translated by N. KRUSHILIN