

**V. I. Tatarskii as a mentor and advisor,
and a perspective on extra-wide-angle parabolic equations**

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As indicated by the title, this presentation has two goals. First, the presenting author will share memories about Prof. V. I. Tatarskii, who was his undergraduate and graduate advisor, and the group lead for many years. Tatarskii is recognized worldwide as one of the founders of a new field in physics, *Wave Propagation in Random Media*. In addition to formulating many fundamental results, he had a remarkable ability to write particularly clear papers and books in this very complicated field. What is less known is that Tatarskii had a similar ability in mentoring and supervising students. He was also a very gentle and intelligent person. His students were lucky to have such an advisor.

Under Tatarskii's supervision in mid- to late 1970s, the presenting author's undergraduate and graduate research was related to expressing the solution of the Helmholtz equation as a series based on backscattering multiplicity. The first term of the series is a sum of all fields multiply scattered forward, which satisfies an extra-wide-angle parabolic equation. The second term is a sum of multiply scattered fields with one backscattering. And so on. The results pertinent to this research were used by other scientists, included in the book Tatarskii wrote with S. M. Rytov and Yu. A. Kravstov, and later summarized in the paper V.E. Ostashev and V.I. Tatarskii, WRCM, 5, 183-189, 1995.

Recently, this research has been continued with applications to extra-wide-angle parabolic equations for sound propagation in moving media such as the atmosphere and ocean (V.E. Ostashev, D.K. Wilson, and M.B. Muhlestein, JASA, 145, 1031-1047, 2019 and 147, 3969-3984, 2020). Some of the results obtained are also applicable for EM propagation as will be explained in the presentation.