



Michael I. Tribelsky

Lomonosov Moscow State University
Russia

New effects in resonant light scattering by Nano objects

Abstract:

Resonant light scattering by nanoparticles provides a unique opportunity to concentrate a high-amplitude electromagnetic field in a subwavelength area of space as well as to tailor and control its pattern. In addition to purely academic interest, this is extremely important for numerous applications ranging from medicine and biology to telecommunication and data processing. Despite more than a hundred years of extensive study, the problem is still far from completion. A review of new results in this field is presented in this contribution. In many cases, despite the smallness of the scattering particles, their light scattering has very little in common with the conventional Rayleigh case. New, counterintuitive effects, especially those related to violating the quasi-static description of the scattering occurring at the action of (ultra)short laser pulses, are pointed out, inspected, discussed, and classified.

Biography

Tribelsky received his MS from Lomonosov Moscow State University in 1973, a PhD from Moscow Institute of Physics and Technology in 1976, and a Dr. of Sci. (habilitation) from Landau Institute in 1985. He received numerous national and international awards: Leninsky Komsomol Prize (1979); COE Professorship, the University of Tokyo (2006, 2008) and Kyushu University (2007), Japan; Honorary PhD, Yamaguchi University, Japan (2016), etc. Now he heads a laboratory at Lomonosov Moscow State University. Presently, his interest lies in subwavelength optics. He authorizes several books, book chapters, review articles, and more than 100 research papers.