Dmitry Chizhik
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SUMMARY *Extensive track record in original research involving theory, measurements and simulations, technology feasibility. IEEE Fellow.*

- *Engineering*: Wireless communication, location, signal processing, RF planning, link budget, interference mitigation, channel estimation
- *Physics specialties:* electromagnetics, acoustics (underwater and ultrasonics), propagation in random media with applications to wireless communications, sensing and imaging.
- *Mathematical interests*: applied mathematics and statistics including statistical analysis of experimental data, construction of stochastic data models, formulation and solution of partial differential equations, asymptotic methods.
- *Funding/project management:* Successfully solicited funding and managed to completion several DARPA and NIST-funded projects
- *Research group management:* Supervised research groups, graduate students and post-doctoral researchers.

EDUCATION NYU Polytechnic Institute
Ph. D. in Electrophysics. Minor: Physics.
M.S., B.S. in Electrical Engineering, *summa cum laude*.

EXPERIENCE

7/95-Present *Member of Technical Staff*, **Bell Laboratories, Nokia, Holmdel NJ**
Theoretical, experimental and numerical modeling of stochastic and deterministic radio propagation channels for wireless communications, development, simulation and evaluation of algorithms and system performance. Solicitation of funds from DoD and NIST to support research.

- Technology feasibility assessments based on physical fundamentals.
- Mm wave communications, measurements and modeling.
- Developed methods for map-based propagation modeling suitable for location, with commercial, emergency, and security applications
- Developed analytical methods for modeling stochastic multi-antenna channels based on measured data and theory (electromagnetics, random media, communications). Model accepted as the industry standard.
  - Proposed, patented and demonstrated a method of slowing down the effective rate of channel fluctuations using multiple antennas, allowing accurate channel estimation at high vehicle speeds.
  - Designed and conducted multi-antenna experiments.
- Managed a DARPA project on radar imaging of building interiors, developing measurement, simulation and analysis plans, and managing a team of 5 people.

10/91-7/95 *Electronics Engineer*, **Naval Undersea Warfare Center, New London, CT**
Theoretical, numerical, experimental and signal processing work in underwater acoustics. Modeling of physics of wave propagation, loss and scattering. Signal processing of measured data for channel characterization.

9/86 - 5/91 *Research Fellow*, **Ultrasonics Laboratory, NYU Polytechnic Institute**
Theoretical and experimental work in RF imaging, electronics and non-destructive evaluation (NDE).
Proposed and demonstrated a novel restricted aperture acoustic lens for imaging and characterization of surface defects as well as measurements of material properties.

SOFTWARE Extensive use of MATLAB, familiar with C/C++

PATENTS 5 granted US patents

AWARDS AND FELLOWSHIPS

IEEE Fellow
Bell Laboratories President's Award for Bell Labs Layered Space-Time Communications
Richard Rosenthal award for outstanding performance on the Electrical Engineering Ph.D. Qualifying Examination, 1989.
US Air Force Laboratory Graduate Fellowship Program, 1987-1991

LANGUAGES Fluent in English and Russian

PERSONAL US Citizen

PUBLICATIONS Over 40 publications (http://www.dmitrychizhik.com), over 5900 citations, h-index of 23.

SELECTED JOURNAL PUBLICATIONS

D. Chizhik, J. Ling, R.A. Valenzuela, "Self-Alignment of Interference Arising From Hallway Guidance of Diffuse Fields", *IEEE Trans. on Wireless Communications*, July 2014.
D. Chizhik, J. Ling, R. A. Valenzuela, "Radio Wave Diffusion Indoors and Throughput Scaling with Cell Density", *IEEE Trans. on Wireless Communications*, September, 2012.
D. Chizhik, "Slowing the time-fluctuating MIMO channel by beam-forming", *IEEE Trans. on Wireless Communications*, Sept. 2004.
D. Chizhik, J. Ling, P. Wolniansky, R. Valenzuela, N. Costa, K. Huber, "Multiple Input Multiple Output Measurements and Modeling in Manhattan", *IEEE Journal on Sel. Areas of Communications, special issue on MIMO, April*, 2003.
D. Chizhik, G. J. Foschini, M. J. Gans, R. A. Valenzuela, “Keyholes, correlations, and capacities of multielement transmit and receive antennas”, *IEEE Trans. on Wireless Communications*, April 2002.