

LEONID A. KUNYANSKY

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EXPERTISE

- Theoretical analysis and numerical methods for Partial Differential Equations: electromagnetic theory, singular integral equations, wave scattering;
- Radon and spherical mean Radon transforms; inversion formulas and algorithms for photoacoustic, nuclear, and other types of tomography;
- Periodic PDEs and photonic crystals theory; high contrast asymptotics of photonics.

RESEARCH EXPERIENCE

Full Professor	University of Arizona, Tucson, AZ	2013 - present
Associate Professor		2005 - 2013
Assistant Professor		2001 - 2005
	Developed inversion formulas and algorithms for various tomography problems; designed new fast, high-order algorithms for surface scattering and photonic crystals theory	
Postdoctoral Scholar	California Institute of Technology, Pasadena, CA	1998 - 2001
	Developed new fast high-order algorithms for surface scattering problems in 3-D; studied scattering from singular obstacles with geometric singularities. Designed new tomography algorithms.	
Graduate Research Assistant	Wichita State U., Wichita, KS.	1995 - 1998
	Conducted analytical and numerical study of high-contrast asymptotic models in photonic crystals theory.	
Consultant, Quant. Analysis	Koch Industries Inc., Wichita, KS.	1997 - 1998
	Analysed and solved direct and inverse option pricing problems.	
Senior Research Scientist	Kharkov Polytechnic University, Ukraine, USSR	1987 - 1995
	Developed algorithms for the numerical inversion of the weighted Radon transform; solved non-linear inverse problems of plasma tomography. Studied numerically wind transfer of air pollutants.	

TEACHING EXPERIENCE

Full Professor	University of Arizona, Tucson, AZ	2013 - present
Associate Professor		2005 - 2013
Assistant Professor		2001 - 2005
Lecturer in Applied Mathematics	California Institute of Technology, Pasadena, CA	2000 - 2001
	Designed and taught a new course "Methods of tomography and computational electromagnetism".	
Graduate Teaching Assistant	Wichita State U., Wichita, KS.	1995 - 1998
	Taught introductory mathematical courses, assuming full responsibility of the class	
Mentor	Kansas Outreach School in Mathematics.	1996 - 1998

OTHER EXPERIENCE

Freelance programmer/ Graphics Designer	(Part time) Developed databases for the natural gas industry and worked as a computer graphics designer	1993 - 1995
Jr. Rsrch Scientist/ Programmer	Institute of Gas Transport, Kharkov, Ukraine, USSR.	1985 - 1987
	Developed data visualisation and simulation software for reoperators of gas compression plants.	
	Military service, USSR.	1983 - 1985

EDUCATION

Ph. D. in Appl. Math.	Wichita State U., KS, GPA 4.0/4.0, Advisor. Prof. P. Kuchment.	1998
Ph. D. in Engineering	Kharkov Polytechnic University, Ukraine, USSR.	1993

AWARDS

Dora Wallas Hodgson Outstanding Doctoral Student Award	1998
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