

## Wei Cai

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### Education

Qinghua University (Beijing, China)	B.S.	1963	Physics
University of Houston	Ph.D	1985	Physics
City College of City University of New York	M.S.	1992	Computer Science

### Professional Experience

1963-1981	Lecturer and researcher	Dept. Physics	Qinghua University, Beijing, P. R. China
1981-1985	Research Assistant	Dept. Physics	University of Houston
1985-	Research Associate	Dept. Physics	City College of City University of New York

### Selected Publications

1. M. Lax, W. Cai, M. Xu, "Random processes in physics and finance," Oxford University Press (2006).
2. W. Cai, X. Ni, S. K. Gayen, R. R. Alfano, "Analytical cumulant solution of the vector radiative transfer equation investigates backscattering of circular polarized light from turbid media," *Phys. Rev. E* **74**, 056605 (2006).
3. W. Cai, M. Xu, R. R. Alfano, "Analytical form of the particle distribution based on the cumulant solution of the elastic Boltzmann transport equation" *Phys. Rev. E* **71**, 041202 (2005).
4. W. Cai, M. Xu, R. R. Alfano, "Three-dimensional Radiative Transfer Tomography for turbid media", *IEEE Selected topics in quantum electronics* **9**, 189-198 (2003).
5. W. Cai, M. Xu, M. Lax, R. R. Alfano, "Diffusion coefficient depends on time not on absorption," *Opt. Lett.* **27**, 731-733 (2002).
6. W. Cai, M. Lax, R. R. Alfano, "Analytical solution of the polarized photon transport equation in an infinite uniform medium using cumulant expansion," *Phys. Rev. E* **63**, 016606 (2001)
7. W. Cai, M. Lax, R. R. Alfano, "Analytical solution of the elastic Boltzmann transport Equation in an infinite uniform medium using cumulant expansion," *J. Phys. Chem.* **B104**, 3996 (2000).
8. W. Cai, M. Lax, R. R. Alfano, "Cumulant solution of the elastic Boltzmann transport equation in an infinite uniform medium," *Phys. Rev. E.* **61**, 3871 (2000).
9. W. Cai, T. F. Zheng, P. Hu, B. Yudanin, and M. Lax, "A model of phonon-associated electron tunneling through a semiconductor double barrier," *Phys. Rev. Lett.* **63**, 418 (1989).
10. W. Cai, T. F. Zheng, P. Hu, M. Lax, K. Shum, and R. R. Alfano, "Photon-assisted resonant tunneling through a double barrier structure for infrared radiation detection," *Phys. Rev. Lett.* **65**, 104 (1990).

## **Patents**

1. R. R. Alfano, W. Cai, F. Liu, M. Lax, B. B. Das, "Time-resolved Diffusion Tomographic Image Reconstruction of Highly Scattering Turbid Media -- Breast Brain and Human Body" U.S. Patent 5,813,988, issued Sep. 29, 1998.
2. R. R. Alfano, W. Cai, F. Liu, M. Lax, B. B. Das, "Time-resolved Diffusion Tomographic 2D and 3D Imaging in Highly Scattering Turbid Media" U.S. Patent 5,931,789, issued Aug. 3, 1999.
3. R. R. Alfano, W. Cai, S. K. Gayen, "Time-resolved Diffusion Tomographic 2D and 3D Imaging in Highly Scattering Turbid Media" U.S. Patent 6,108,576, issued Aug. 22, 2000.
4. R. R. Alfano, W. Cai, M. Lax, "Time-resolved optical backscattering tomographic image reconstruction in scattering turbid media" U. S. Patent 6,205,353, issued Mar. 20, 2001.
5. R. R. Alfano, J. P. Ying, S. K. Gayen, W. Cai, "Methods of improving line of sight wireless optical communication through adverse environmental conditions", U. S. patent 7106972, issued Sept. 12, 2006.
6. R. R. Alfano, W. Cai, "Hybrid-dual Fourier tomographic algorithm for a fast three-dimensional optical image reconstruction in turbid media", U. S. Patent 7218959, issued May 15, 2007.