

## Joseph Ganem

### (Long Biography)

**Joseph Ganem, Ph.D.** is a Professor of Physics at Loyola University Maryland. He received a B. S in 1981 from the University of Rochester, a M. S. in 1984 from the University of Wisconsin-Madison, and a Ph.D. in 1989 from Washington University in St. Louis. All his degrees are in physics. He had postdoctoral research appointments at the University of Georgia in Athens, GA and the U. S. Naval Research Laboratory in Washington, DC before joining the faculty of Loyola College in Maryland (since re-named Loyola University Maryland) in 1994 as an assistant professor. He was promoted to associate professor in 2000 and professor in 2008. He served as chair of the physics department from 2012-2017.

Dr. Ganem is an experimental condensed matter physicist specializing in spectroscopic techniques. His Ph.D. work at Washington University under the direction of Dr. Richard E. Norberg used nuclear magnetic resonance (NMR) spectroscopy to characterize solid hydrogen mixtures and hydrogen dissolved into solid argon matrices. At the University of Georgia and the U. S. Naval Research Lab he used optical spectroscopy to study rare earth elements embedded in crystals. Many of the rare earth-activated crystalline materials that he studied have applications for lasers and phosphors. He is co-inventor (patent no. 5,535,232) of a 7-micron wavelength praseodymium-activated laser that to date is the longest wavelength achieved for a rare earth-based solid-state laser.

At Loyola University Maryland, Dr. Ganem has maintained an active research program using optical spectroscopy to study infrared phosphors and solid-state laser materials. He has received grants from Research Corporation, the Petroleum Research Fund, and the National Science Foundation for this research and is an author on numerous scientific papers and presentations. He has given invited talks at international conferences.

As an educator, Dr. Ganem has taught physics in the classroom for more than 20 years and has served three years (2011-2014) on the Maryland State Advisory Council for Gifted and Talented Education. He is particularly interested in financial and quantitative literacy. In 2007 he authored the award-winning book: *The Two Headed Quarter: How to See Through Deceptive Numbers and Save Money on Everything You Buy*. It won a gold medal in the category "Finance/Investment/Economics" for the 2008 Independent Publisher Awards, and was a Finalist in the in the "Business: Personal Finance" category for the 2007 National Best Books Awards.

Dr. Ganem speaks and writes frequently on science, consumer, and education issues, and has been a contributor of articles on these topics to the *Baltimore Sun* newspaper. For its 2017 "Best of Baltimore" awards, *Baltimore* magazine named him one the "Best Baltimoreans" in its people in the media section for the category "Best Defense of Science." In 2018 he authored *The Robot Factory: Pseudoscience in Education and Its Threat to American Democracy*. In it he presents a new vision for 21<sup>st</sup> century education – a call to reject pseudoscience in all its forms, engage in a collective search for truth, and commit to an authentic education for every child.

Dr. Ganem and his wife live in Baltimore County, Maryland where they raised three children, all of whom are now college graduates. They also have two grandchildren.