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Carlos E. Kenig is the Louis Block Distinguished Service Professor at the University of Chicago. Kenig is recognized for his applications of harmonic analysis to partial differential equations.

Kenig was born in Buenos Aires, Argentina in 1953. He obtained his PhD at the University of Chicago in 1978. After being an instructor at Princeton University and a professor at the University of Minnesota, Kenig returned to the University of Chicago in 1985. Kenig was awarded the Salem Prize in 1984 and the Bocher Prize of the American Mathematical Society in 2008. Kenig received the Solomon Lefschetz medal of the Mathematics Council of the Americas in 2021, and the ICMAM Latinamerica Prize 2024. He was an invited speaker at the International Congress of Mathematicians in 1986 and 2002 and a plenary speaker in 2010. In 2017 Kenig delivered the American Mathematical Society's Colloquium lectures. Kenig is a Fellow of the American Academy of Arts and Sciences and of the American Mathematical Society. He is a member of the National Academy of Sciences of the US, a Foreign Member of the Istituto Lombardo, a Foreign Academician of the Royal Academy of Sciences of Spain and a Corresponding Member of the Academia Nacional de Ciencias Exactas, Físicas y Naturales of Argentina. Kenig was a vicepresident of the American Mathematical Society and he served as the President of the International Mathematical Union for the period 2019-2022.

Title: "Simplification" in partial differential equations

Abstract:

In the middle of the 20th century, through the breakthrough computer simulations of Fermi--Pasta--Ulam (mid50s) and Kruskal--Zabusky (mid 60s) it was observed computationally that some nonlinear equations modeling wave propagation, asymptotically exhibit a "simplification", as superposition of "traveling waves" and "radiation". This has become known as the "soliton resolution conjecture". Recently, there have been important advances in obtaining mathematical proofs of these types of computer simulations in the context of nonlinear wave equations, which I will discuss.