



## Manfred Robert Schroeder: A Personal Memoir

This year we are celebrating the thirty sixth anniversary of Schroeder's seminal paper on sound scattering from maximum length sequences. This paper, along with Schroeder's subsequent publications on quadratic residue diffusers and other number theoretic sequences, broke new ground, because they contained simple recipes for designing diffusers with known acoustic performance. This presentation will review the impact of Schroeder's innovation in diffusion on my life, RPG Diffusor Systems, and the acoustical industry. It will also show how the evolution, design, measurement, prediction, characterization, and optimization of Schroeder's sound diffusing concepts utilized diverse disciplines, including mathematics and number theory, microwave and crystallographic diffraction, fractal geometry and self-similarity, the

Helmholtz-Kirchhoff equation, periodicity and aperiodicity, signal processing and multi-dimensional optimization. As digital technology has resulted in advances in almost every discipline, Schroeder's genius gave birth to what I call digital acoustical surfaces, which have found widespread application in every aspect of acoustical architecture. Personally, I am indebted to Manfred Schroeder for my career in acoustics and the acoustical community is indebted to him for leading the way and educating all of us with wit, scientific parsimony, and insight.