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"If You Can Specify It, You Can Analyze It" —The Lasting Legacy of Philippe Flajolet

The "Flajolet School" of the analysis of algorithms and combinatorial structures is centered on an effective calculus, known as analytic combinatorics, for the development of mathematical models that are sufficiently accurate and precise that they can be validated through scientific experimentation. It is based on the generating function as the central object of study, first as a formal object that can translate a specification into mathematical equations, then as an analytic object whose properties as a function in the complex plane yield the desired quantitative results. Universal laws of sweeping generality can be proven within the framework, and easily applied. Standing on the shoulders of Cauchy, Polya, de Bruijn, Knuth, and many others, Philippe Flajolet and scores of collaborators developed this theory and demonstrated its effectiveness in a broad range of scientific applications. Flajolet's legacy is a vibrant field of research that holds the key not just to understanding the properties of algorithms and data structures, but also to understanding the properties of discrete structures that arise as models in all fields of science. This talk will survey Flajolet's story and its implications for future research.