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**Stephen Melczer\*** ([smelczer@sas.upenn.edu](mailto:smelczer@sas.upenn.edu)). *Analytic Combinatorics in Several Variables: Applications and Effective Methods.*

Recent work in the field of analytic combinatorics in several variables has shown how techniques from real and complex analysis, algebraic geometry, and topology can be combined to create robust and rigorous tools for the analysis of a large variety of combinatorial problems. This talk introduces some of these methods, discusses the extent to which they can be automated, and highlights examples from number theory, combinatorics, and physics. (Received September 15, 2017)