Why the Life Sciences are Different

Just as physics speaks the language of mathematics, the life sciences speak the language of algorithms. The difference lies in the high descriptive complexity of the systems commonly found in social and biological organisms. While history plays a minor role in physics, it is the distinguishing feature of the living world. Algorithms provide not only the expressivity needed to model complex living systems but also the analytical tools for their analyses.

This talk will discuss the power of "natural algorithms" through the lens of "influence systems," a broad family of high-dimensional dynamical systems for which algorithmic tools can do what differential equations cannot.

Bernard Chazelle is Eugene Higgins Professor of Computer Science at Princeton University, where he has been on the faculty since 1986. He is currently a member of the Institute for Advanced Study at Princeton. He has held research and faculty positions at top universities and research institutes around the world. He received his PhD in computer science from Yale in 1980. He is the author of the book, *The Discrepancy Method*, an AAAS Fellow, and recipient of several awards from SIAM.