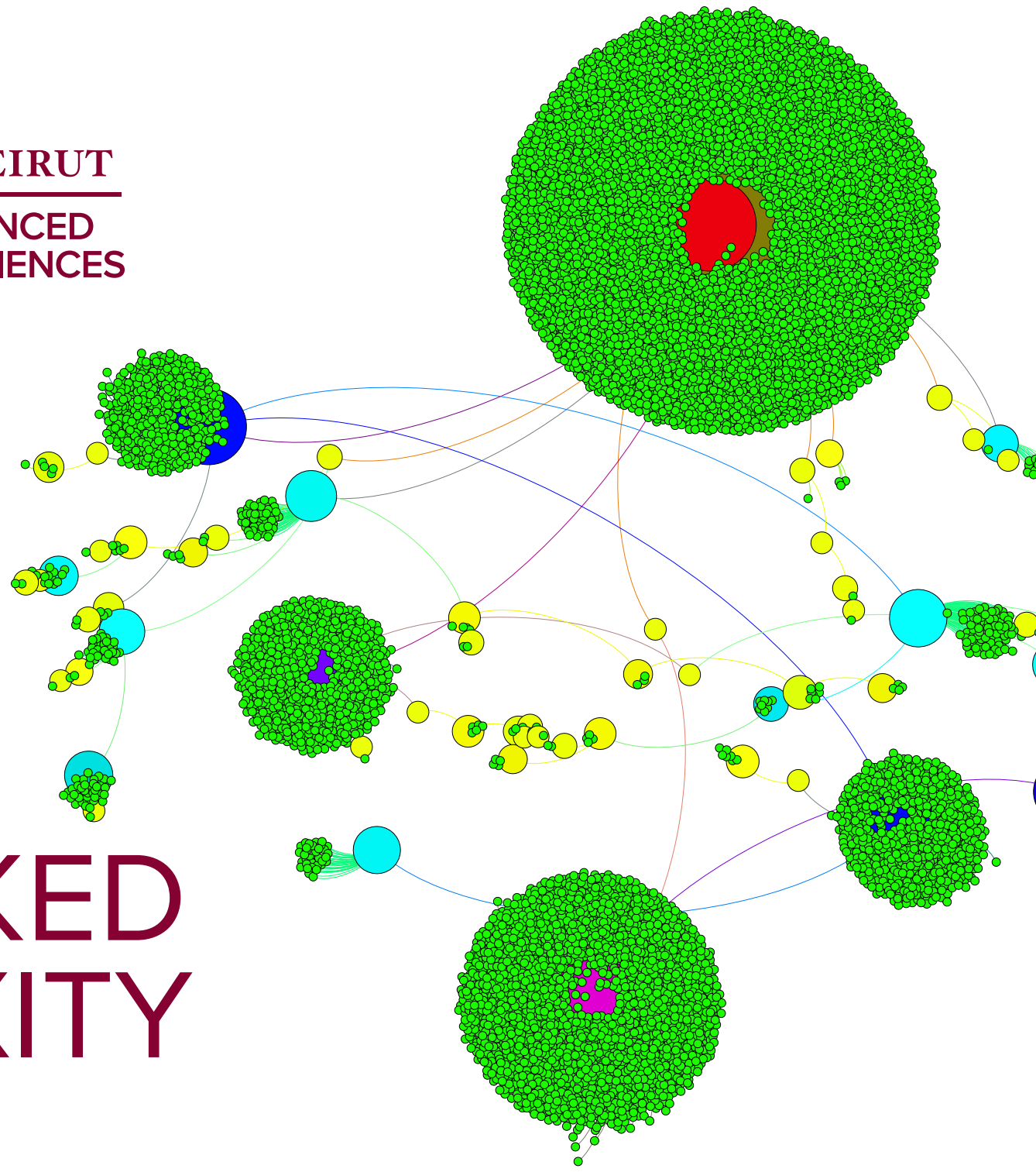
AMERICAN UNIVERSITY OF BEIRUT

CENTER FOR ADVANCED MATHEMATICAL SCIENCES



CAMS COURSE IN NETWORKED COMPLEXITY

COURSE OUTLINE

INTRODUCTION TO RANDOM WALKS: Discrete random walks | Master equation for continuous-time random walks | Central limit theorem.

KINETICS OF THE BIRTH/DEATH PROCESS: Master equation | Generating function solution

KINETICS OF AGGREGATION: Mathematical preliminary: the generating function method | Constant kernel solution | Product kernel solution and gelation phenomena | Role of steady input

COMPLEX NETWORKS: Erdos-Renyi random graph | Random recursive trees | Preferential attachment models.

NEW TIMING

JANUARY 23, 25, 26, 30 | FEBRUARY 1, 3, 2023 | 5:15 PM

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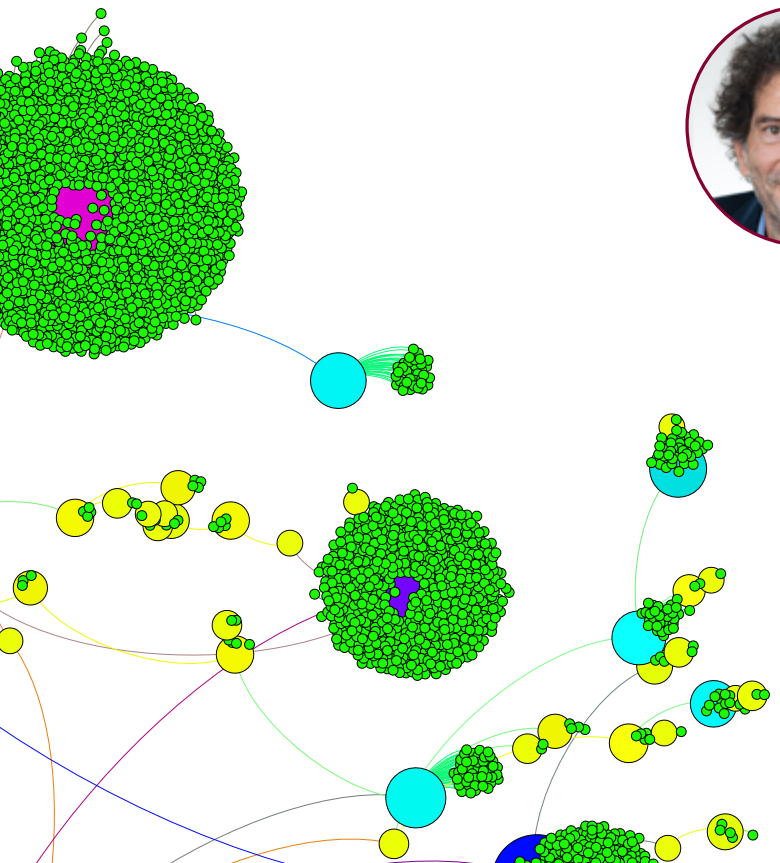
COLLEGE HALL, AUDITORIUM B1 AND ZOOM



SIDNEY REDNER

Santa Fe Institute, USA

Sid Redner received an A.B. in Physics from UC Berkeley in 1972 and a Ph.D. in Physics from MIT in 1977. After a postdoctoral year at the University of Toronto, he joined the physics faculty at Boston University in 1978. He was a Visiting Scientist at Schlumberger-Doll Research in 1984, the Ulam Scholar at LANL in 2004, and a visitor professor at Universite Paul Sabatier in Toulouse, University Pierre et Marie Curie and Institute Henri Poincare, both in Paris. In 2014, he joined the Santa Fe Institute as a resident professor. His research interests lie in non-equilibrium statistical physics. He has worked on the structure of complex networks, physics-based models of social dynamics, phase phase-ordering kinetics, as well as diffusion and first-passage processes and their applications. He has published more than 300 articles in major journals, as well as two books: the monograph “A Guide to First-Passage Processes” (Cambridge Univ. Press, 2001) and the graduate text, jointly with P. L. Krapivsky and E. Ben-Naim, “A Kinetic View of Statistical Physics” (Cambridge Univ. Press, 2010).