



THE SANTA FE INSTITUTE'S ANNUAL SCIENCE BOARD  
& BOARD OF TRUSTEES SYMPOSIUM

# THE END *of* EVERYTHING & THE SHAPE OF THINGS TO COME: *Toward Unified Theories of Collapse and Transformation*

May 4, 2019 The Inn & Spa at Loretto Santa Fe, New Mexico

## AGENDA

8:00a	Breakfast (Inn and Spa at Loretto)	1:45	<i>The Collapse of Artificial Intelligence</i> <b>Melanie Mitchell</b> (Portland State)
9:00	Welcome and opening remarks <b>David Krakauer</b> (Santa Fe Institute) & <b>Dan Schrag</b> (Harvard)	2:25	<i>The End of Everything: A Discussion</i> Discussants: <b>John Kaag</b> (University of Massachusetts–Lowell), <b>Ann M.</b> <b>Pendleton-Jullian</b> (Ohio State), & <b>Woody Powell</b> (Stanford)
9:30	<i>The Collapse of Economies</i> <b>Ricardo Hausmann</b> (Harvard)	3:30	Break
10:10	<i>The Collapse of Ecosystems</i> <b>Doug Erwin</b> (Smithsonian)	3:45	Continued open discussion/Wrap-up
10:50	Break	5:00	Adjourn
11:10	<i>The Collapse of Networks</i> <b>Raissa D'Souza</b> (UC Davis)	5:30–7	Shuttles will run to and from SFI/ Inn and Spa at Loretto.
11:50	<i>Fall of the Roman Empire</i> <b>Kyle Harper</b> (University of Oklahoma)	6:00	Cocktails & substantial hors d'oeuvres at SFI
12:30p	Lunch		

## ABSTRACT

Entropy production ensures that nothing remains unchanged forever, and more often than not, change tends toward dissolution. In complex systems everything eventually dies, from cells and organisms, through to institutions and societies. In parallel with aging and ending are opportunities for new beginnings—new species prosper following mass extinctions, new companies find new markets following the competitive demise of their precursors, and new ideas can more easily be adopted once old ones have been refuted or lost.

Behind these cycles of collapse and emergence there are general patterns and perhaps general laws. In this meeting we shall explore integrated frameworks for collapse and their implications for common mechanisms of rebirth, asking whether both of these can be placed within quantitative frameworks. We seek to know whether failure can be predicted and how failure establishes the conditions for invention? And whether collapse is inevitable, and perhaps even desirable, in all robust evolving systems?



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