

STEFAN THURNER

Professor for Science of Complex Systems at the Medical University of Vienna and President of Complexity Science Hub, Vienna



Stefan Thurner is full professor for Science of Complex Systems at the Medical University of Vienna, where he chairs Section for Science of Complex Systems. Since 2007 he is external professor at the Santa Fe Institute, since 2010 he is a part-time senior researcher at IIASA. Since 2015 he is the president of the newly founded Complexity Science Hub Vienna, a new center that focuses on the interface of complexity science, networks and big data.

He has a PhD and habilitation in theoretical physics from the Technical University of Vienna and a PhD in economics from the University of Vienna. He held postdoc positions at Humboldt Universität zu Berlin and Boston University before he joined the faculty of the University of Vienna and later Medical University.

With his engagement with the Santa Fe Institute - he shifted his focus from theoretical physics to biological and complex systems, which are now his main scientific areas. He published more than 190 scientific articles in fundamental physics, applied mathematics, complex systems, life sciences, finance and economics, and lately in social sciences. He holds 2 patents.

He organized international workshops, conferences and summerschools, and presented more than 200 talks. His work has received broad interest from the media such as the New York Times, BBC world, Nature, New Scientist, Physics World and is featured in more than 450 newspaper, radio and television reports. He works in a network of scientists mostly around the Santa Fe Institute, the former Collegium Budapest, where he was a fellow in 2007, and many European initiatives.

He serves as a member of many scientific and editorial boards. Currently he is a visiting professor at NTU, and a visiting Fellow of Magdalen College Oxford.

How complexity weakens causality - emerging dangers - and ways out

Complex systems often seem to be non-causal and are therefore hard to control and manage. This may be so even if complex systems are fully deterministic at the level of their fundamental building blocks and networks that keep them together. We discuss problems that emerge from a world that is getting increasingly complex and seemingly less causal such as the gradual public acceptance of a 'post-factual era'. The solution to these problems can only be in a better understanding of complex systems and its communication. That this is possible we demonstrate with the case of understanding systemic risk - the risk of collapse - in the financial system and ways to fully eliminate it.