

3-Year PhD Position

Supply-Chain and Financial Network Modelling

Complexity Science Hub Vienna, Austria

€ 31,326.4 gross/year part time (30h)



**COMPLEXITY
SCIENCE
HUB
VIENNA**

The [Complexity Science Hub Vienna](#) is a fast-growing research institution dedicated to a quantitative and predictive understanding of complex systems for the improvement of society. We provide an exciting, creative, bureaucracy-free environment for open-minded visionaries who want to make a change.

PhD TOPIC

Crises like pandemics, or natural catastrophes demonstrate the fragility of highly interdependent corporate supply networks and the complex production processes depending on them. This potentially causes prolonged economic crises, because initially affected firms propagate the shocks along their supply chains and hence affect companies belonging to other industry sectors and regions initially not affected. However, the effects of cascading shocks in supply networks are not confined to the real economy itself, but affect the stability of financial networks, too.

The successful candidate will work on a research project, funded by the Central Bank of Austria, that investigates how economic shocks spread along firm level supply networks and will quantify the implications for the financial system, based on novel methods for highly granular firm-level data sets.

YOUR PROFILE

We are looking for a bright young scientist and critical thinker who is open-minded, has a collaborative spirit and feels comfortable within an interdisciplinary environment cutting across network science, economics, social science, physics, finance, and complex systems.

The successful candidate will have the following profile

- Have completed or be close to completing a Master's degree or equivalent in a quantitative science (natural sciences, finance, economics, computational social science, computer science, mathematics, geography, biology etc.).
- A Master's thesis or equivalent work showing modeling and/or mathematical skills, additional research experience is a plus
- Willingness to work independently and carry out data-driven research
- Have programming experience (e.g. with R, Python, Julia or Matlab, etc.)
- Proficiency in English (written and spoken)

If you are eager to learn how to model the shock spreading mechanisms in a complex firm-level multi-layer network, get your hands on real data, and understand resilience, systemic risk and cascading processes, please apply!

We strongly encourage women and people from minority backgrounds to apply.

WE OFFER

A fully funded 3-year PhD position in an exciting research environment at the Complexity Science Hub Vienna, in close collaboration with colleagues from the Economic Networks Team, access to a network of world-renowned researchers and a great community of talented, young and motivated PhD and Post-Doc researchers. The PhD will be supervised by Stefan Thurner and Peter Klimek. The position is available from October 2021.

APPLICATION

Please send your application materials to office@csh.ac.at with the subject line: “PhD Application Supply-Chain & Financial Network Modelling”, including a CV, a one-page motivation letter, a list of publications (if any), a copy of the Master' thesis (or equivalent scientific writing sample), and any additional material showing your strong computational skills, mathematical ability, and creativity. Please also include names and full contact addresses of at least one person that is willing to write a letter of recommendation for you.

Personal data is processed in accordance with the law (<https://www.csh.ac.at/data-protection/>).