

**ERC Starting Grant**  
**Starting date: 2023**

# Model Transfer and its Challenges in Science: The Case of Economics

## MODEL TRANSFER

### Proposal summary

How can a single model be used to study predator-prey interactions in biology, the growth of cancer in medicine, and the business cycle in economics? And how is such a transfer of models supposed to relate to scientific progress? To answer those questions, we need to understand how models are transferred across domains. While model transfer is one of the most pertinent phenomena in modern science, philosophers have not yet given it due attention. Our project will fill this lacuna in a ground-breaking way: we will provide a comprehensive philosophical investigation of model transfer, its challenges, and its implications for scientific progress by innovatively combining approaches from philosophy and history of science with computational methods that are themselves new to philosophy. Because the literature so far neglects model transfer in the social sciences, we will focus on economics as an exemplary case that provides insights for the social and natural sciences alike.

The main objectives of this project are to:

- (1) *develop* methodological and conceptual tools to study model transfer and its challenges in science;
- (2) apply those tools to *philosophically investigate* model transfer and its challenges in science;
- (3) *explore* the implications of our results for the relationship between model transfer and scientific progress.

This project will place model transfer upfront on the philosophical agenda. Thereby, our research will impact an extensive literature on scientific models and modelling in philosophy of science and the social sciences. By applying computational methods to study model transfer, it will push their use in empirical philosophy of science and *Integrated History and Philosophy of Science*. It will challenge established philosophical concepts of progress in light of such model transfers. Finally, it will inform scientific and science policy debates about how to overcome challenges to model transfer so that progress in model-based science can be ensured.