



**UCSD Science Studies Program
Colloquium Series**

presents

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4:00 – 6:00pm

Humanities and Social Sciences Bldg. #3027

Reception prior to talk at 3:30 pm in HSS 3005

How models give us knowledge

Abstract

The wider project context of this paper is "Philosophy of science for the engineering sciences". This research project is funded by the Dutch National Science Foundation (NWO). It stands in the tradition of "Philosophy of science in practice", which aims to address concrete (e.g. epistemic) problems and questions of current research practices such as the engineering sciences. This paper is in collaboration with Tarja Knuuttila of the University of Helsinki. Our concern in this paper is in explaining how and why models give us useful knowledge. We argue that if we are to understand how models function in the actual scientific practice the representational approach to models proves either misleading or too minimal. We propose turning from the representational approach to the artefactual, which implies also a new unit of analysis: the activity of modelling. Modelling, we suggest, could be approached as a specific practice in which concrete artefacts, i.e., models, are constructed with the help of specific representational means and used in various ways, for example, for the purposes of scientific reasoning, theory construction and design of experiments and other artefacts. Furthermore, in this activity of modelling the model construction is intertwined with the construction of new phenomena, theoretical principles and new scientific concepts. We will illustrate these claims by studying the construction of the ideal heat engine by Sadi Carnot.

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