William Bechtel is a philosopher of science whose research addresses the nature of explanation in the life sciences. He argues that explanation often takes the form of identifying the parts and operations of the responsible mechanism and demonstrating with mathematical models how it could account for the phenomena. Most recently he has focused on the role of diagrams in representing the phenomenon to be explained, identifying the relations between operations in the mechanism, and the organization of the mechanism itself. In his current case study of research on circadian rhythms, he emphasizes diagrams as vehicles of scientific reasoning, considering both how diagrams represent data and hypotheses but also are operated on by scientists to reveal new aspects of the responsible mechanism. Bechtel’s books include *Discovering Complexity* (Princeton, 1993; MIT Press, 2010), *Connectionism and the Mind* (Blackwell, 1991, 2002), *Discovering Cell Mechanisms* (Cambridge, 2006), and *Mental Mechanisms* (Routledge, 2008). He is editor of the journal *Philosophical Psychology*. 