

Patching Physics and Chemistry Together

Bishop, Robert (2004) Patching Physics and Chemistry Together. In *[2004] Philosophy of Science Assoc. 19th Biennial Meeting - PSA2004: Contributed Papers (Austin, TX; 2004): PSA 2004 Contributed Papers*, Austin, Texas.

Full text available as:

[PDF](#) - Requires a viewer, such as [Adobe Acrobat Reader](#) or other PDF viewer.

Abstract

The "usual story" regarding molecular chemistry is that it is roughly an application of quantum mechanics. That is to say, quantum mechanics supplies everything necessary and sufficient, both ontologically and epistemologically to reduce molecular chemistry to quantum mechanics. This is a reductive story, to be sure, but a key explanatory element of molecular chemistry, namely molecular structure, is absent from the quantum realm. On the other hand, typical characterizations of emergence, such as the unpredictability or inexplicability of molecular structure based on quantum mechanics do not characterize the relationship between molecular chemistry and quantum mechanics well either. A different scheme for characterizing reduction and emergence is proposed that accommodates the relationship between quantum mechanics and molecular chemistry and some initial objections to the scheme are considered.

Keywords: Context, Reduction, Emergence, Chemistry, Quantum Mechanics

Subjects: [Specific Sciences: Chemistry](#)
[General Issues: Philosophers of Science](#)
[Specific Sciences: Physics: Quantum Mechanics](#)

Conferences and Volumes: [\[2004\] Philosophy of Science Assoc. 19th Biennial Meeting - PSA2004: Contributed Papers \(Austin, TX; 2004\): PSA 2004 Contributed Papers](#)

ID Code: 1880

Deposited By: [Bishop, Robert C.](#)

Deposited On: 16 August 2004