

Methodological Realism and Quantum Mechanics - Michael Cuffaro

Abstract:

In the opening paragraph of his paper, How to Teach Special Relativity, John S. Bell wrote: "I have for long thought that if I had the opportunity to teach this subject, I would emphasize the continuity with earlier ideas. Usually, it is the discontinuity which is stressed, the radical break with more primitive notions of space and time. Often the result is to destroy completely the confidence of the student in perfectly sound and useful concepts already acquired." Although the topic of Bell's paper was special relativity, the attitude being expressed is of course a very general one. In my talk I will argue that we can take this attitude towards quantum mechanics. In particular, I will argue that there is an important methodological continuity between quantum mechanics and earlier physics, and that this methodological continuity is more important to physics than the disanalogies and discontinuities which, as it happens, form the basis of most criticisms (including by Bell) of orthodox approaches to interpreting the formalism.