

## AGPhil 8: Quantum Foundations 4

Time: Thursday 11:00–12:30

Location: JAN/0027

**Invited Talk** AGPhil 8.1 Thu 11:00 JAN/0027  
**Interpreting Quantum Mechanics on an Informational Approach** — ●MICHAEL CUFFARO — Munich Center for Mathematical Philosophy, LMU Munich, Germany

The traditional metaphysical picture of the world takes observation-independent properties as primary and to be the origin of values of dynamical quantities revealed in experiments. It is naturally suggested by classical mechanics, since the classical state fixes the values of all such quantities in advance. Famously this is not true of the quantum state. Although Everett is the most natural interpretation of quantum mechanics given the traditional metaphysical picture, in this talk I defend an informational interpretation. What we preserve from classical mechanics is not the metaphysical picture it suggests, but the empiricist methodology through which one reasons, from the probability distributions over the values revealed in experiments, to a global picture of the world that is anchored in the contextual models one gives of phenomena under the dynamical assumptions characterising each of them. A priori, the question of how to conceive of reality is, on our approach, open; but the answer suggested by the novel kinematical framework of quantum mechanics is that a description of the world that does not include a reference to the possibilities of observation is inadequate for physics. Since observers are represented schematically,

our kinematical resolution of the measurement problem reveals the observation-independent structure of the world, but it is a mistake to interpret this structure in substantial terms.

**Invited Talk** AGPhil 8.2 Thu 11:45 JAN/0027  
**Does science need intersubjectivity? The problem of confirmation in orthodox interpretations of quantum mechanics** — ●EMILY ADLAM — University of Western Ontario

Any successful interpretation of quantum mechanics must explain how our empirical evidence allows us to come to know about quantum mechanics. In this talk I will argue that this vital criterion is not met by the class of orthodox interpretations, which includes QBism, neo-Copenhagen interpretations, and some versions of relational quantum mechanics. I will take a detailed look at the way in which belief-updating might work in the kind of universe postulated by an orthodox interpretation, and argue that observers in such a universe are unable to escape their own perspective in order to learn about the structure of the set of perspectives that is supposed to make up reality according to these interpretations. I will also argue that in some versions of these interpretations it is not even possible to use one's own relative frequencies for empirical confirmation.