

# Realism about What?

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During 20th century, since the birth of Vienna circle, physics is the one of the most typical science for philosophy of science. Philosophy of science, particularly scientific realism debates, takes into consideration several historical cases from physics. On the other hand, nowadays, philosophy of physics itself has developed almost independently from philosophy of general science. The scientific realism debate also does not reflect the details of the results of philosophy of physics. For instance, ontological status of quantum state determines the interpretations of quantum mechanics, but the scientific realism debate does not pay much attention to this issues. But no one doubts that the question, “Realism about what?”, is important for both. Thus, this presentation examines this question from the perspectives of philosophy of physics. This talk deals with three typical topics in philosophy of physics: quantum theories, spacetime, and statistical physics. Among several topics, the ontological status of non-fundamental realm that emerges from fundamental realms by imposing some mathematical structure are controversial and interesting. For instance, although classical mechanics is literally false, but the classical structure is preserved and then classical mechanics is still effective and useful in particular area (ex. Wallace 2012). Similarly, as is well known, spacetime structure is not fundamental from the perspective of quantum gravity, so that a question arises whether spacetime is only imaginary or rather epistemic (ex. Huggett and Wüthrich 2013). With respect to more concrete physical objects, renormalization groups demonstrate so-called universality. Similar to the case of spacetime, the mathematical manipulation is required for explaining the universal phenomena from microscopic models (ex. Batterman 2000). In sum, this talk investigates the ontological status and structural similarities of these non-fundamental realms in physics.

講演時の使用言語：英語