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| **Meeting title:** Metaphysical foundations of the physics of the microworld |
| **Date:** 1.2.2024.  |
| **Time:** 18.00 |
| **Place:** Zoom |
| **Zoom link:** Odsjek za filozofiju Filozofski fakultet u Rijeci is inviting you to a scheduled Zoom meeting. Join Zoom Meeting<https://us02web.zoom.us/j/85446846725?pwd=N01RMmhmUGhmVDFZZE9oM3NicWVGQT09> Meeting ID: 854 4684 6725 Passcode: 302350 --- |
| **Duration:** 2 hours and 30 minutes |
| **Participants:** Boran Berčić, Filip Čeč, Ljudevit Hanžek, Filip Grgić, Andrej Jandrić, Matija Rajter, Aleksandar Božić, Marin Biondić, Danica Radoš, Martina Blečić, Boris Kožnjak |
| **Absentees:** - |
| **Agenda:** 1. Boris Kožnjak delivering the talk “Metaphysical foundations of the physics of the microworld”
2. Discussion, questions and comments
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| **Meeting summary:** On this occasion the team of the “Metaphilosophy” project gathered to listen to the talk of Boris Kožnjak. Kožnjak based the talk largely on his book *Democritus’ atoms and Parmenides’ plenum*. After Kožnjak delivered his talk the discussion section has been opened in which the team of the ”Metaphilosophy” project and other members of the audience presented their questions and comments aimed at the content of the presentation. |
| **Talk summary:**The title of today’s talk was “Metaphysical foundations of the physics of the microworld”. The author mentioned in his presentation a number of papers which fall within the scope of physics and philosophy and which provide the context of the talk. As a prelude to the main theme of the talk Kožnjak reflects on the frequent argument that science works; it is evident that scientific research has as its output tangible results which can aid us in our everyday lives. One example of such an output comes in the form of an airplane. However, while we can offer a description of the mechanisms that enable us to build ever more efficient airplanes, it seems that we are unable to provide a satisfying *explanation* of said phenomena. This claim is supported by the fact that there are multiple competing formulations of such an explanation on offer within the scientific community. While we have certain mathematical models that aid us in the construction of airplanes, mathematics alone cannot offer us an explanation.One of the central themes of Kožnjak’s talk was an overview of the ontological questions that arise from the new findings in the realm of quantum mechanics. Within this context Kožnjak reflected on the writings of Parmenides and Democritus which represent two available metaphysical frameworks in the form of ontological monism and dualism respectively. Ontological monism and/or dualism can enable us to, at least in principle, think about the physics of the microworld. At this point we draw a parallel to Albert Einstein who claimed that our physical observations depend on the theory that we accept. In other words, it is our metaphysical framework which determines the things we can observe. Our metaphysical framework also influences the interpretation of the results of a particular scientific experiment.Kožnjak argues that we can rely on the Aristotelian conceptual framework in giving a contemporary description of quantum mechanics. This can be done by calling upon the concepts of *actuality* and *potentiality*. |
| **Questions and comments:** Berčić* Aenesidemus’ insight: we always find a being in a certain environment and cannot gain insight into the thing in itself without taking said environment into account. Relevance of this thesis for the author.
* Context of discovery and context of justification; relevance for the author.

Božić* In the context of dialetheism some contradictions can be true. We can take as an example a virus, an entity for which it can be said that it is both alive and not-alive. Can this give us some insight into the ontology of the microworld?

Čeč* Talk about quantum mechanics is sometimes mentioned in the discussions concerning free will. It seems that we can understand the concept of potentiality in two distinct ways: (1) as a process that lasts through a certain period of time, or (2) as a process that exists in a certain moment. Discussion of the relevance of this distinction for the claims of the author.
* Should we have a different ontology for the macroworld and the microworld?

Grgić* Aristotle’s framework is probably applicable, but Aristotle calls upon things that are not necessary. Relying on Aristotle could result with excessive ontological/conceptual baggage.
* It is not clear which concept or understanding of ‘potentiality’ the author calls upon.
* It looks like the historical framework does not have the explanatory power as the author wants it to have.
* What actualizes these potential entities we talk about? They themselves, measuring instruments or something else?
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