

Jury Report Hanneke Janssen Memorial Prize 2016

The Jury decided unanimously to award the 2016 Hanneke Janssen Memorial Prize to James Read for his Thesis to the University of Oxford, called *Background Independence in Classical and Quantum Gravity*.

The Jury valued in particular the clarity, mathematical competence and philosophical sensibility with which this work approaches the topic of background independence.

It discusses four different proposals to define background independence in general spacetime theories, and points out the problems and caveats for each of these.

These definitions are then applied to the familiar spacetime theories like General Relativity and the Newtonian Gravity, to assess their background independence, but also to relatively less-explored cases like Newton-Cartan theory, Teleparallel Gravity and Kaluza-Klein theory, and fills in many of the details needed for this application.

Moreover, this Thesis also addresses an extension of these views on background independence to quantum theories like string theory and the AdS-CFT correspondence.

While many of the verdicts reached in this thesis are not really surprising, the clarity of argumentation, the attention to detail and subtleties and the novelty of the Thesis in exploring theories that do not commonly receive much attention in the contemporary philosophy of physics literature convinced the Jury that this Thesis deserves the Hanneke Janssen Memorial Prize 2016.

The submission of Jaco de Swart's Master's Thesis *How dark matter came to matter. A History of missing Matter: 1960-1974*.

The jury valued the clarity and competence of this submission, as well as its originality in approaching a topic like dark matter that is not yet a focus of historical research in the HPS community.

However, in spite of the many qualities displayed in this work, the Jury was less convinced of the claim that institutional changes in the pursuit of dark matter (rather than, say, the accumulation of observations) were essential to its recognition as a problem.

Several Jury members expressed the view that this submission would have been worthy of winning the award, but the unanimous decision, in view of the other submissions, has been to award the prize to James Read. Nevertheless, we do want to express that this work exemplifies a relevant new author in the History of Physics, who we would like to encourage to continue in this field.

The submission of John Dougherty's Thesis *The hole argument take n*

This Thesis provides an interesting take on the well-known hole argument, employing the mathematical framework of Homotopy Type Theory (HoTT).

The Jury judged that the explanation of this particular framework to the History and Philosophy of Science audience is less than clear, and that its relevance to the hole argument is assumed rather than argued for. While this Thesis clearly displays the work of a highly gifted and competent

researcher, the Jury ranked this submission at a distinct margin from the winner. However, the Jury did recognize the competence and philosophical acumen of the author and importance of his topic, and wishes to encourage him to pursue this in future work.

Nijmegen, November 25st 2016

The Jury:

Dr. J. Uffink (University of Minnesota), *chair*

Prof. Dr. N.P. Landsman (Radboud University)

Dr. M.P. Seevinck (Radboud University)

Dr. Ch. Lehner (Max Planck Institute, Berlin)

