The Magazine

September 2022

Introduction

Hello PiBM network members!

For many of us, the fall semester is now in full swing and the juggling act has begun. This month's newsletter has a lot of interesting updates – various exciting conferences and workshops in the near future (a few on cancer), awards for new educational programs, excellent publications, and even some brief reflections on Bordeaux's new MA. There is a lot in store and we hope you enjoy this month's offerings!

Jobs!

PhD Student at Arizona State University

As part of a recently funded NSF CAREER award to study the knowledge infrastructure of the Red List of Threatened Species, Beckett Sterner is looking to recruit a new PhD student at Arizona State University in this fall's upcoming application cycle. The project would be a great fit for students with an interest in historical and conceptual issues in biodiversity and conservation. Interest in issues such as open science, data equity and justice, or Indigenous Knowledge would be an extra plus. Students can find out more about Sterner's work here.

Any interested students should get in touch with Beckett Sterner by email at beckett.sterner@asu.edu. There are several possible PhD programs they could apply to at ASU that fit to different backgrounds/interests, including Biology and Society, History and Philosophy of Science, and Human and Social Dimensions of Science and Technology.

Fellowship Calls

The Institute of Advanced Studies of Aix-Marseille (IMéRA, Marseille, France) has opened a call for residencies (5 to 10 months) in 2023/2024 to support interdisciplinary explorations: https://imera.univ-amu.fr/fr/appel-a-candidatures-2023-24 The call is by 2 researchers from a biophysics laboratory in Marseille. Their research focuses on adhesion and mechanics of molecules and cells, especially in the field of cancer. They are willing to support an application allowing them to engage in new interdisciplinary exchanges, and in particular to open up to philosophical approaches, for example, using metaphysical tools or addressing epistemological questions. For further questions, please contact: felix.rico@inserm.fr ; claire.valotteau@inserm.fr.

Upcoming Conferences/Events

"Immunology Meets Philosophy", 24-25 October 2022, Prague

Organized by the Department of Analytic Philosophy, Institute of Philosophy, Czech Academy of Sciences.

Immunology is an experimentally and conceptually rich discipline. "Immunology Meets Philosophy" is an interdisciplinary event in which some very big names in the fields of immunology and philosophy of immunology will discuss recent developments regarding immunity and their philosophical issues. Topics include tissue repair, disease tolerance, immunometabolism, trained immunity and more.

The full program will be available in early October at https://pmpos.flu.cas.cz/immunology-2022/

Invited speakers:

Judith Allen (Professor of Immunobiology, Lydia Becker Institute of Immunology & Inflammation, Wellcome Centre for Cell-Matrix Research, School of Biological Sciences, University of Manchester)

Dominik Filipp (Principal Investigator of the Laboratory of Immunobiology, Institute of Molecular Genetics, Czech Academy of Sciences)

Mihai Netea (Professor of Experimental Medicine, Department of Internal Medicine, Radboud University Nijmegen Medical Centre)

Thomas Pradeu (CNRS Senior Researcher & Principal Investigator of the Conceptual Biology and Medicine Team, ImmunoConcEpT lab, CNRS & University of Bordeaux)

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Upcoming Conferences/Events

Miguel Soares (Principal Investigator of the Inflammation Lab, Instituto Gulbenkian de Ciência)

Bartlomiej Swiatczak (Department of History of Science and Scientific Archeology, University of Science and Technology of China)

Michaela Tencerova (Principal Investigator of the Laboratory of Molecular Physiology of Bone, Institute of Physiology, Czech Academy of Sciences)

Sophie Veigl (Institute of Philosophy, University of Vienna)

The event will take place on-site, but it is open to anyone on Zoom. To attend the event, free registration is required. To register, send an email to zach@flu.cas.cz and state your name and full affiliation. You can also follow updates by Martin Zach on Twitter: @martinzach_

Optogenetics and Philosophy: Mutual Enlightenment?

In an often-quoted paper of 1999, Francis Crick pointed out that "to turn the firing of one or more types of neurons on and off in the alert animal in a rapid manner, the ideal signal would be light". Several years after the publication of the first paper by Boyden and Deisseroth in 2005, optogenetics has become a widely used method, the success of which goes beyond the realm of neuroscience, and which has also attracted the attention of philosophers (e. g. Craver, 2012; Bickle, 2016; Robins, 2016; Sullivan, 2018).

Optogenetics controls the activity of neurons or other cell types with light after expression of light-sensitive proteins in target cells. By activating or inhibiting neurons in animals, researchers have induced changes in behaviour and the cessation of symptoms of psychiatric diseases. Furthermore, optogenetics has made it possible to erase and create a memory, and to manipulate perception in behaving rodents. Strikingly, in a first medical application of optogenetic technology, vision was partially restored in a blind patient (Sahel, 2021).

Together with a philosopher, Denis Forest, and a neuroscientist, Nicolas Heck, Héloïse Athea is organising a workshop that will bring together neuroscientists and philosophers to discuss various issues raised by the optogenetic method. A round table will follow the presentations. It will take place in Paris on 1 December and can also be followed by videoconference.

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Upcoming Conferences/Events (cont.)

The aim of this workshop is to bring scientists and philosophers together to discuss the impact, promises, current limitations, and significance of this method. Several key points will be raised during this day:

1. The contributions of the method: could we have otherwise achieved what we found with optogenetics?

2. Can optogenetics establish a causal relationship between the activation of neurons and behaviour, and what does "causal relationship" mean in this context?

3. Can it be said that optogenetics can control not only behaviour, but also perception, memory, emotional state, etc.?

For further details, please visit: https://www.neurophile.fr/workshop-optogenetics

David Bilder at Bordeaux (PiBM Seminar Series)

For anyone at or near Bordeaux, David Bilder from University of Berkeley (USA) will be visiting and presenting his research on "ancient origins of tumor-host interactions: insights from Drosophila model". His presentation will be on October 5 from 9:30-10:30am (Genomique fonctionelle).

The Bilder Lab (University of Berkeley) studies the molecules and mechanisms that govern the polarity, growth, and morphogenesis of epithelia, the fundamental tissue of all animals and the major constituent of human organs. They also use Drosophila cancer models as a simple system to understand both how epithelial organization prevents tumor formation and how tumors actually kill their hosts.

Here is an example of his recent work: Bilder et al. (2021). Tumour-host interactions through the lens of Drosophila, *Nature Reviews Cancer*.

Cancer and Evolution: An international workshop in Arcachon, France

This workshop, from October 6-7, will explore cancer from an evolutionary perspective, with a strong focus on how cancer appeared and evolved and on the different forms of cancer across taxa. It gathers the world-leading experts to address this issue. It is organized by Bertrand Daignan-Fornier (IBGC, CNRS, Bordeaux, France), Mathieu Giraudeau (LIENSs, CNRS, La Rochelle, France), Thomas Pradeu (ImmunoConcept, CNRS, France), and Benjamin Spada (ImmunoConcept, CNRS, France).

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Upcoming Conferences/Events (cont.)

Speakers

David Bilder (University of Berkeley, USA), "Ancient origins of tumor-host interactions: insights from the Drosophila model"

Thomas Bosch (Christian-Albrechts-Universität zu Kiel, Germany), "Hydra´s stable microbiome: key for escaping cancer?"

James DeGregori (Department of Biochemistry and Molecular Genetics, University of Colorado Anschutz Medical Campus, USA), "Somatic evolution – causes and consequences"

Mathieu Giraudeau (CNRS, La Rochelle, France), "Wildlife species as a source of inspiration in our fight against cancer?"

Vera Gorbunova (Rochester, USA), "Evolution of tumor suppressor and longevity mechanisms: from bats to whales"

Crisanto Gutierez (Centro de Biologia Molecular Severo Ochoa, CSIC-UAM, Madrid, Spain), "The Retinoblastoma/E2F pathway, an evolutionary ancient module in plants and animals"

Hanna Kokko (Zürich, Switzerland), "Peto's paradox in lemurs: insights from fitting the multi-step model of cancer to lifespan data"

Carlo Maley (Arizona State University, USA)

Elizabeth Murchison (Cambridge University, United Kingdom), "Transmissible cancers in mammals"

Samir Okasha (Department of Philosophy, University of Bristol, United Kingdom), "Should cancer be viewed through the lens of social evolution theory?"

Joshua D. Schiffman (MD, Division of Pediatric Hematology/Oncology, Department of Pediatrics and Huntsman Cancer Institute, University of Utah, Salt Lake City, Utah, USA; Peel ("Elephant") Therapeutics, Inc., Salt Lake City, Utah, USA and Haifa, Israel), "Elephants, Evolution, and Cancer: How elephants contributed to a new biotech focused on evolutionary medicine"

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Upcoming Conferences/Events (cont.)

Flash talks

Bertrand Daignan-Fornier (IBGC, CNRS, Bordeaux, France), Cancer and multicellularity: general ideas and an experimental approach

Lucie Laplane (IHPST & Gustave Roussy, Paris, France), Unraveling assumptions in clonal evolution

Maël Lemoine (ImmunoConcept, University of Bordeaux, France) & Thomas Pradeu (ImmunoConcept, CNRS, France), Do anticancer mechanisms exist?

Benjamin Spada (ImmunoConcept, CNRS, France)

For abstracts and further details, please visit: https://www.philinbiomed.org/event/arcachon-cancer-and-evolution/

A complex systems approach to cancer understanding - Lyon

Cancer is a multifactorial disease, with causes ranging from molecular events to the life style, and subtle interactions among those. It originates from the very intimacy of multicellular living systems, and requires a multidisciplinary effort to be understood and, ultimately, defeated.

The aim of our conference, taking place on October 17-18, will be to gather biologists, philosophers of science, mathematicians, systems biologists, sociologists, medical doctors to name but a few, to foster a broad interdisciplinary conversation about the multifaceted nature of cancer.

We decided to organize this conference IRL, and we hope the state of the pandemics will allow it. If so this will be held in the Amphithéatre Descartes at ENS de Lyon.

Please note that registration is FREE but MANDATORY. To register, you will have to create a sciencesconf.org account by filling the on-line registration and submission forms.

For all details about the program, registration, etc., please visit the website: https://compsyscan22.sciencesconf.org/

Announcements

"The National Science Foundation Innovations in Graduate Education program has awarded the UC Center for Public Engagement with Science (PEWS) funding to support a new interdisciplinary educational sequence for graduate students in public engagement with science. PEWS will receive $500,000 over three years to pilot coursework and internships in public engagement with science and to research the impact of this training.

The NSF Innovations in Graduate Education (IGE) program is designed to encourage the development and implementation of bold, new, and potentially transformative approaches to STEM graduate education training. This award will investigate the value of systematic instruction in public engagement with science for meaningful public engagement, interdisciplinary collaboration, and diversity and inclusion in STEM.

PEWS Director Angela Potochnik and Associate Director Melissa Jacquart (both in Philosophy) will develop a 3-part educational sequence, the Engaging Science curriculum, which uses interdisciplinary collaboration, community partnership, and perspectives from philosophy of science to provide background and skills needed for effective public engagement with science. PEWS Faculty Affiliates Brooke Crowley (Geology & Anthropology) and Nate Morehouse (Biology) will participate in instruction and mentorship of the graduate students. Cincinnati Museum Center and Littisha Bates, Associate Dean for Inclusive Excellence and Community Partnership in UC's College of Arts & Sciences, will also support curriculum development and instruction.

PEWS Faculty Affiliate Carlie Trott (Psychology) will lead the research side of the project by examining the transformative impact of the Engaging Science curriculum, including its potential to advance the public reach of STEM disciplines and diversity and inclusion in STEM disciplines. The research plan combines quantitative and qualitative methods to examine the unique and additive impact of each level of training on short- and long-term outcomes. This approach will facilitate the adaptation of the curriculum for implementation in diverse contexts. You can read about the pilot graduate seminar PEWS developed that will be used as the basis for part of the Engaging Science curriculum here."

For more details on this exciting program, visit: https://ucengagingscience.org/2022/09/08/nsf-funds-uc-graduate-training-in-public-engagement-with-science/

Publications

The Turing project "From Local Fields to Global Indicators" (https://www.turing.ac.uk/research/research-projects/field-data-global-indicators), which Sabina Leonelli led since 2019, is coming to an end. They have two papers emerging from this research on crop data and knowledge integration, its regimentation, and its broader implications:

Leonelli, S. (2022). Process-Sensitive Naming: Trait Descriptors and the Shifting Semantics of Plant (Data) Science. *Philosophy, Theory and Practice in Biology* https://doi.org/10.3998/ptpbio.16039257.000000

Williamson, H. and Leonelli, S. (2022). Accelerating Agriculture: Data-Intensive Plant Breeding and the Use of Genetic Gain as An Indicator for Agricultural Research and Development. *Studies in the History and Philosophy of Science* 95: 167-176. https://doi.org/10.1016/j.shpsa.2022.08.006

In November 2022, the edited volume deriving from the multiple collaborations across plant, crop and data scientists within the project will appear in Open Access format with Springer. Information about the online launch of the book, which will happen at the end of November, will appear soon on the Egenis website.

Williamson, H. and Leonelli, S. (eds.) (2022, in press). *Towards Responsible Plant Data Linkage: Data Challenges for Agricultural Research and Development*. Cham: Springer Open Access.

Calvo, P. Lawrence, N. (2022). *Planta Sapiens: Unmasking Plant Intelligence*. The Bridge Street Press. ISBN: 9780349128450.

(Book blurb) Prepare to journey into the fascinating world of plants and have your preconceptions about intelligent life – and the supremacy of humanity – turned upside down. This book is a thought-provoking challenge for everyone: from those who believe that plants are probably intelligent to those who think they could not possibly be. https://www.littlebrown.co.uk/titles/paco-calvo/planta-sapiens/9780349128450/

Reports on the world of PiBM!

For anyone interested in process philosophy and its recent applications to understanding virology and even pandemic-related topics, you can watch the video of John Dupré's recent talk at Bordeaux entitled "What are viruses? Parasites, processes, parts or all of the above?": https://www.philinbiomed.org/event/john-dupre-viruses/

As mentioned in the previous newsletter, the most recent EASPLS meeting was held at Bordeaux. The meeting went extremely well, with lots of great discussions, well-designed and thought-provoking posters, and of course various expert presentations by the invited speakers. We also had a lot of fun and here is a group picture of the happy attendees:

Reports on the world of PiBM! (cont.)

Finally, the team at Bordeaux wanted to provide some short reflections on the start of the new PiBM MA program.

As mentioned in the previous newsletter, the brand new PiBM MA program, shared between Bordeaux University and University Bordeaux-Montaigne, kicked off this semester. The first cohort comprises only five students, who come from a wide range of backgrounds, both in terms of philosophy or science and in terms of nationalities. This diversity makes the program very exciting and enriching. The students are currently diving deep into courses on exemplars in the tradition of philosophy in biology, tools in philosophy of science, how to read and evaluate scientific papers, and how to produce excellent bibliographies. With the series of invited speakers, and their soon-to-start internships in scientific labs at Bordeaux, we hope to provide the students with the best educational environment we can offer them. There will be more on developments with this MA program in future newsletters.

With that, we wrap up this month's newsletter. Thanks for reading and see you all next month!