FIRST INTERNATIONAL CONFERENCE ON
BRIDGING THE PHILOSOPHIES
OF
BIOLOGY AND CHEMISTRY

Organizers:  Dr. Jean-Pierre Llored,
Dr. Joachim Schummer,
Dr. Quentin Hiernaux,
Dr. Cécilia Bognon.

JUNE 25–27, 2019

UNIVERSITY OF PARIS DIDEROT,
FRANCE

Room 454A, Building Condorcet, University Paris Diderot,
4, rue Elsa Morante, 75013 Paris, France
phil-bio-chem.sciencesconf.org
First International Conference on
BRIDGING THE PHILOSOPHIES OF BIOLOGY AND CHEMISTRY
June 25-27, 2019

Université Paris Diderot, salle 454A, Bâtiment Condorcet, 4, Rue Elsa Morante, 75013 Paris, France

Organizers: Dr. Jean-Pierre Llored (SPHERE, University Paris Diderot, France; Linacre College, Oxford University, Oxford, UK), Dr. Joachim Schummer (Editor-in-Chief of the Hyle, International Journal for the Philosophy of Chemistry), Dr. Quentin Hiernaux (Free University of Brussels) and Dr. Cécilia Bognon-Kuss (IHPST and University Paris 7)

Supports:
– SPHERE, Mixed Research Unit between the University Paris 7 and the CNRS.
– The department of History and Philosophy of Science at the University Paris 7.
– The Institute of Humanity and Science at the University Paris 7.
– LIED, Mixed Research Unit between the University Paris 7 and the CNRS.
– The Free University of Brussels.
– The ‘Fondation de la maison de la chimie’: The Foundation of the House of Chemistry.
– The ‘Société Chimique de France (SCF)’: The French Chemical Society.
– The Laboratory of Catalysis and Solid State Chemistry, Mixed Research Unit between the University of Lille and the CNRS.

We also gratefully acknowledge the intellectual support of:
– The CNRS in the framework of the celebration of its eightieth year of existence.
– The International Society for the Philosophy of Chemistry.
– The Circle of the Philosophers of Nature supervised by Miguel Espinoza.

PROGRAM

TUESDAY, 25 JUNE 2019

10:00 Welcome Coffee
10:30 Introduction

Session I [10:45-12:15]
NEW SCIENTIFIC WORKS AND ETHICAL IMPLICATIONS
Chair: Cécilia Bognon-Kuss

10:45 Stéphane Sarrade (Commissariat à l’énergie atomique et aux énergies alternatives de Saclay, France): Green Chemistry and ecology
11:45 Grant Fisher (Korea Advanced Institute of Science and Technology, Korea): The ethics and epistemology of stem cell toxicity models

12:15 Lunch

Session II [13:30-17:00]
HISTORICAL STUDIES
Chair: Quentin Hiernaux

13:30 Antonino Drago (University “Federico II” of Naples, Italy) : A common foundation of biology and chemistry according to a Leibniz’s suggestion
14:00 Miguel Escribano Cabez (University of Basque Country, Spain): G.W. Leibniz and the problem of constitution and genesis of the organic bodies. Edicism and preformationism
14:30  Sarah Hijmans (Université Paris Diderot, SPHERE, France):
  *Oxygen and the reactions of life in Lavoisier's chemistry*

15:00  Coffee Break

15:30  Cécilia Bognon-Kuss (IPHST & Université Paris Diderot, France):
  *From Stoffwechsel to metabolism: The rise of a chemical biology*

16:00  Sara Franceschelli (ENS of Lyon, France):
  *Instabilities first! A relational interpretation of Turing’s approach to morphogenesis*

16:30  Ute Deichmann (Ben-Gurion University of the Negev, Beer Sheva, Israel):
  *Data, theory, and scientific belief in early molecular biology: Pauling’s and Crick’s conflicting notions about the genetic determination of protein synthesis and the solution to the 'secret of life'*

17:00 END

**WEDNESDAY, 26 JUNE 2019**

9:30  Welcome Coffee

  **Session IIIa [10:00-12:45]**
  ONTOLOGICAL ISSUES
  Chair: Joachim Schummer

10:00  Keynote speaker:
  Stephan Guttinger (Centre for Philosophy of Natural & Social Science, London School of Economics, UK):
  *Understanding the nature of molecules: Process ontology and scientific practice*

11:00  Coffee Break

11:15  Donato Bergandi (Museum National d'Histoire Naturelle, Paris):
  *Rethinking emergence*

11:45  Jean-Pierre Llored (SPHERE, University Paris Diderot, France ; Linacre College, Oxford University, UK):
  *Relational ontologies in chemistry, biology, and ecology: An investigation*

12:15  Quentin Hiernaux (FNRS-FUB, Belgium):
  *Do chemical substances have ecological existence conditions?*

12:45  Lunch

  **Session IIIb [14:00-16:30]**
  ONTOLOGICAL ISSUES
  Chair: Stephan Guttinger

14:00  Guglielmo Militello (Univ. of the Basque Country & IAS-Research Centre for Life, Mind & Society, Spain):
  *Structural and organisational conditions for being a machine*

14:30  Daniel J. Nicholson (Konrad Lorenz Institute for Evolution and Cognition Research, Austria):
  *Is it appropriate to conceptualize biological macromolecules as molecular machines?*

15:00  Coffee Break

15:30  Klaus Ruthenberg (Coburg University of Applied Sciences and Arts, Germany):
  *Acids: Chemical or biological kinds?*

16:00  Gregor Greslehner (CNRS & University of Bordeaux, France):
  *What is the explanatory role of the structure-function relationship in immunology?*

16:30 END
THURSDAY, 27 JUNE 2019

Session IV [9:30-15:00]
BRIDGING CONCEPTS AND APPROACHES
Chair: Jean-Pierre Llored

9:30 Keynote speaker:
Samir Okasha (President of the European Philosophy of Science Association, Bristol University, UK):
Can the philosophy of biology provide any lessons for the philosophy of chemistry?

10:30 Coffee Break

10:45 Olivier Sartenaer (University of Cologne, Germany):
A place of its own? On the role of chemistry in the dispute over the reducibility of biology to physics

11:15 Jerome Santolini (Institute for Integrative Biology of the Cell, University Paris-Saclay, France)
& Martin Feelisch (Faculty of Medicine and Institute for Life Sciences, University of Southampton, UK):
Redox chemistry as the principal biological language

11:45 Michael Tobin (Independent scholar, Baltimore, USA):
Species as Quanta?: State discreteness in biology

12:15 Lunch

13:30 Michele Friend (Georgetown University, USA):
Conceptual analysis in chemistry and biology using formal languages

14:00 Benjamin J. McFarland (Seattle Pacific University, USA):
The power of dissipative systems for chemical and biological explanation

14:30 Petra R. M. Maitz (Konrad Lorenz Institute for Evolution and Cognition Research, Austria):
RNA folding manner creates new insights of selforganising systems, a metamodernism?

15:00 Coffee Break

Session V [15:00-17:30]
SYNTHETIC BIOLOGY
Chair: Cécilia Bognon-Kuss

15:30 Franck Dumeignil (Chemistry Department, University of Lille, France):
Hybrid catalysis as a new topical concept bridging biotechs and chemistry

16:00 Joachim Schummer (Editor-in-chief of Hyle, International Journal for the Philosophy of Chemistry):
Knowing through making: A comparison between synthetic chemistry and synthetic biology

16:30 Massimiliano Simons (KU Leuven, Belgium):
Dreaming of a universal biology

17:00 Dominic J. Berry (London School of Economics and Political Science, United Kingdom):
The synthesis of DNA: Chemical subunits making a narrative of biological engineering

17:30 General discussion and designation of the modalities of organization of the second congress "Bridging the Philosophies of Biology and Chemistry"

18:15 END OF THE CONFERENCE