The Scale of Reality:
Metaphysics of Quantities and the Laws of Nature

December 9–11, 2026

University Jean Moulin Lyon 3, Lyon, France

From Galileo to Eugene Wigner, the idea that nature is written in "mathematical language" and that reality is quantitative in nature is a fundamental assumption of physics. Yet the metaphysics of this "quantitative reality" remains a work in progress. What exactly is the nature of physical quantities—distance, mass, charge? What is the structure of the quantitative laws that connect them, and what do the equations of physical theories describe? And what is the ontological status of the fundamental constants that link these quantities and set the scales of our theories?

The scientific ambition of the workshop is to better connect separate areas of research in contemporary metaphysics of sciences: the metaphysics of quantities, the metaphysics of laws of nature, and the emerging metaphysics of fundamental constants, by examining together the nature of physical quantities, the quantitative structure of laws, and the ontological status of the constants that relate quantities and set the scale of physical reality.

Program:

Wednesday, December 9, 2026

Room CH203, Centre de la Recherche Eugène Chevreul, 18 rue Chevreul - Lyon 7e

13h30: Welcome and coffee

14h: Jo Wolff (University of Edinburgh), *"Making contact: measurement is more than prediction"*

15h: Alessandro Giordani (Università Cattolica del Sacro Cuore), *"A Defense of Classical Realism"*

16h: Coffee break

16h30: Ada Köprülüler (University of Barcelona), *"Bohmian Particles as Individuals Without Intrinsic Properties"*

17h30: George Hobart (University of Bristol), *"Which Quantities are Fundamental for Elementary Particles?"*

Thursday, December 10, 2026

Salle Garraud (room), Palais de l'Université, 15 quai Claude Bernard - Lyon 7e

9h30: Andreas Hüttemann (University of Cologne), *"Laws, Constraints and Modal Structure"*

10h30: Mahmoud Jalloh (California Institute of Technology), *"Laws as Equations: Methodological Primitivism"*

11h30: Anna Garoflid-Oprescu (University of Geneva), *"The Metaphysics of the Ideal Gases Law"*

12h30-14h: Lunch break

14h: Caspar Jacobs (Leiden University) & Niels Martens (Utrecht University), *"The Metaphysics of Physical Constants"*

15h: Jean-Marc Levy-Leblond (Université Côte d'Azur), *"On the status of the cosmological constant"*

16h: Coffee break

16h30: Gauvain Leconte-Chevillard (Université de Caen Normandie) & Florent Barzic (Université de Namur), *"What cosmology does with and to constants and their value"*

17h30: Giovanni Rizzotto (Università della Svizzera Italiana), *"Two Arguments against Hossack's Theory"*

Friday, December 11, 2026

Salle Garraud (room), Palais de l'Université, 15 quai Claude Bernard - Lyon 7e

9h30: Zee Perry (University of Birmingham), TBA

10h30: Neil Dewar (Cambridge University), *"Representation, measurement, and quantities"*

11h30: Andrea Abbondandolo (University of Pisa), *"Causal Essences and the Quantitative Nature of Fundamental Physical Properties"*

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Organization: Julien Tricard (Université Jean Moulin Lyon 3, IRPHIL)

Registration is required: julien.tricard@univ-lyon3.fr

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institut de Recherches Philosophiques de Lyon
Université Jean Moulin Lyon 3