

# Conceptual Issues in Fundamental Physics

## June 9<sup>th</sup> – LPSC Grenoble

**10:30 Francesca Vidotto** (IMAPP Nijmegen)  
*No Time No Problem*

**14:00 Marco Guagnelli** (INFN Pavia)  
*Do Virtual Particles Really Exist?*

## June 13<sup>th</sup> – LAPTh Annecy

**10:30 Philippe Brax** (IPhT CEA Saclay)  
*What is the Problem With the Cosmological Constant?*

**14:00 Alexia Auffèves** (Institut NEEL Grenoble)  
*A Physically Realist Ontology for Quantum Mechanics*

© Red

All curious physicists (students/researchers, experimentalists/theorists) are welcome! Presentations will be followed by question/discussion sessions.

*Participation is free, registration is appreciated for planning the lunch:*  
<https://lpsc-indico.in2p3.fr/Indico/event/1603/>

### Info & Organization:

Aurélien Barrau, Luca Fabbri, Marie-Hélène Genest, Cécile Renault, Pierre Salati





“Distoriyan”



“Spinore”



“Just the beginning”



“Diana”



Works will be at Louvre, Paris, France, 20-24/10/2017



Shut up and calculate!



Shut up and calculate!



There are more things on Earth, Horatio, than those you can dream in your science and philosophy.

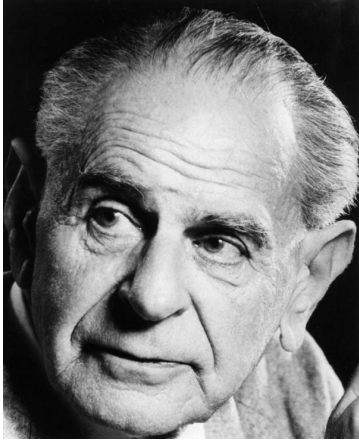




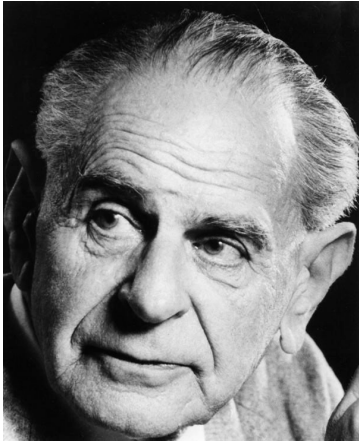
Shut up and calculate!



... strings, loops... conformal symmetry, supersymmetry... non-metric gravity, torsion...  $SU(5)$ ,  $SO(10)$ ,  $SO(32)$ ,  $E8$ ... higher-order gravity,  $f(R)$ -gravity,  $f(T)$ -gravity,  $f(X)$ -gravity, massive gravity... Majorana spinors, ELKO spinors... Galileons, aether... there are maaaaaaany more things in our theories, Richard, than those that are really found in the Universe.



Popper: Theories should be conceived with no limits, and experiments should then be used to rule them out.



Popper: Theories should be conceived with no limits, and experiments should then be used to rule them out.



Jan L. A. van de Snepscheut: In theory there is no difference between theory and practice, but in practice there is.

## CONCEPTUAL ISSUES IN FUNDAMENTAL PHYSICS – the manifesto:

- "Shut up and calculate!" is being followed too literally and so we would like to suggest a more balanced "How about we think before we calculate?"

## CONCEPTUAL ISSUES IN FUNDAMENTAL PHYSICS – the manifesto:

- "Shut up and calculate!" is being followed too literally and so we would like to suggest a more balanced "How about we think before we calculate?"
- talks are a presentation (technical as much as needed but after that essentially conceptual) on a specific subject then followed by extensive discussions on that subject (which may continue even after the allotted time).