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FIRENZE PhD Chemical Sciences

UNIVERSITÀ

DEGLI STUDI

Da un secolo, oltre.

# **PROF. VIRGINIE VIDAL**

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## Monday May 19, 2025 12:00

### Aula 03

Tendostruttura Rosalind Franklin Via del Guado, 50019 Sesto Fiorentino (Firenze)

Link for online connection meet.google.com/kfh-rvpp-iqc

will present the lecture TRANSITION METAL-CATALYZED REACTIONS: FROM LABORATORY TO SCALE-UP DEVELOPMENT

> Organised in the context of the PhD Programme in Chemical Sciences

> > You are kindly invited to participate

Prof. Dr. Anna Maria Papini Coordinator of the PhD in Chemical Sciences Prof. Dr. Anna Maria Papini Organizer

#### TRANSITION METAL-CATALYZED REACTIONS: FROM LABORATORY TO SCALE-UP DEVELOPMENT



Virginie VIDAL

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Over the past few years, significant research has been directed toward the development of new methods for synthetic efficiency and atom economical processes. Among them, the potential of transition metal-catalyzed reactions has been steadily demonstrated, as they provide a direct and selective way toward the synthesis of highly valuable products. We have been engaged in a project dedicated to the development of catalytic methods for the synthesis of bio-relevant targets. More specifically, we have been interested in asymmetric reductions such as hydrogenation and transfer hydrogenation reactions, which provide important catalytic approaches to fine chemicals. In this context, our contribution to this field is the development of novel ligands and organometallic complexes for C-H bond forming processes to access biorelevant targets. Some applications in this field will be presented. [1-5]

#### Selected references

[1] L. Bacheley, J. Boutet, G. Guillamot, P. Gilles, J. Martin, P. Phansavath, V. Ratovelomanana-Vidal, "Stereoselective Access to  $\beta$ -gem Difluorinated Alcohols Through Enzymatic Reduction" *Adv. Synth. Catal.* **2024**, 366, 3511-3515. Special issue "Fluorine in chemistry" Invitation Prof J. Richmond (Editor-in-Chief *Adv. Synth. Catal.*) & Prof V. Gouverneur

[2] L. Bacheley, R. Ravindra, G. Guillamot, P. Phansavath, V. Ratovelomanana-Vidal "Access to Enantioenriched β-Hydroxy gem-Difluorinated Heterocyclic and Acyclic Derivatives through Rh(III)-Catalyzed Asymmetric Transfer Hydrogenation" *Adv. Synth. Catal*, **2024**, 366, 1019-1023.

[3] L. Bacheley, R. Molina Betancourt, R. Ravindra, G. Guillamot, P. Phansavath, V. Ratovelomanana-Vidal, "Asymmetric Synthesis of Monofluorinated Carbocyclic Alcohols and Vicinal Difluorinated Heterocycles and Carbocycles" *Eur. J. Org. Chem.*, **2023**, 26, e20230038 (VIP, Very Important Paper - part of the Asymmetric Synthesis and Catalysis special issue)

[4] R. Molina-Betancourt, P. Phansavath, V. Ratovelomanana-Vidal "Rhodium-Catalyzed Asymmetric Transfer Hydrogenation/Dynamic Kinetic Resolution of 3-Benzylidene-Chromanones" *Org. Lett.* **2021**, *23*, 1621-1625.
[5] J.P. Genêt, P. Phansavath, V. Ratovelomanana-Vidal "Asymmetric Hydrogenation: Design of Chiral Ligands"

and Transition Metal Complexes. Synthetic and Industrial Applications" (Special issue dedicated to Prof B. Trost, Invitation Prof E. Keinan) *Isr. J. Chem.* **2021**, *61*, 409-426.

#### Virginie VIDAL

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Virginie Vidal was born in Paris, France. She received her undergraduate education and a M. Sc. in Organic Chemistry from Paris-Sud University. She obtained her PhD in 1988 under the supervision of Prof. H. P. Husson and Dr. J. Royer (Gif, France). She then pursued postdoctoral appointments with Prof. S. Hanessian in Canada (University of Montreal, 1989 & 1990), and with Prof. P. Potier and Dr. R. H. Dodd (Gif, 1991). She was appointed Associate Researcher at the CNRS with Prof. J. P. Genêt at Ecole Nationale Supérieure de Chimie de Paris. She is currently Research Director CNRS at Chimie ParisTech (Paris, France). Her research interests focus on the development of synthetic methodologies in organic chemistry, transition metal-catalyzed reactions and the design of phosphorus containing atropisomeric ligands (Synphos and Difluorphos) for asymmetric catalysis. The synthesis of natural and biorelevant targets is also a focus in her group. She was Chair of the Division of Organic Chemistry of the French Chemical Society (2009-2012), team leader within IRCP Laboratory (2014-2018) and i-CLeHS Laboratory (2019-2024). She was awarded the Chemistry Medal of the French Academy of Sciences in 2024. Her production includes 181 publications, 10 chapters, 4 patents (h-index = 46). She has given over 155 presentations at international and national conferences, as well as in academic research institutions & industry.