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UPMC - Institut Parisien de chimie mol  culaire (UMR 7201)

Architectures hybrides : construction et r  activit  

Journ  e annuelle de la chimie 2008-2009

Universit   Pierre et Marie Curie

29 janvier 2009

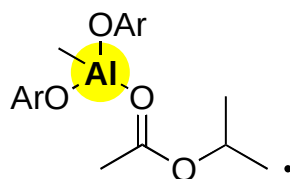


Formation

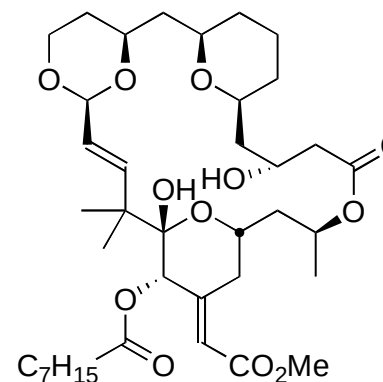
FONCTION

bioactivité, catalyse, propriétés physiques, etc.

Thèse cotutelle, 1999, UPMC/Fribourg (CH)
Max Malacria-Philippe Renaud



Postdoc, 1999-2000, Stanford
Paul A. Wender

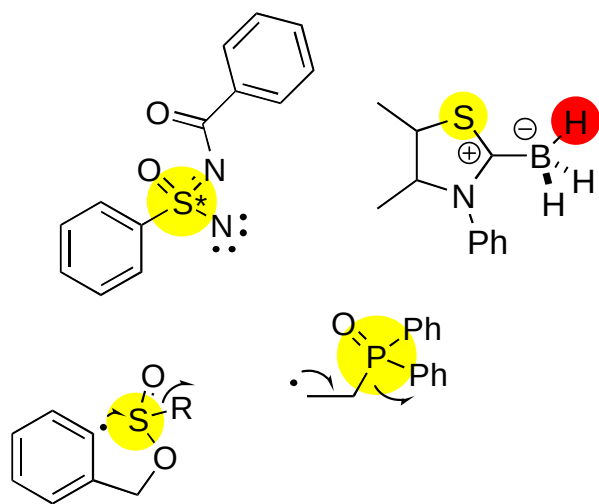


CHIMIE
MOLÉCULAIRE

STRUCTURE

SYNTHÈSE

Activité (2000-2008)



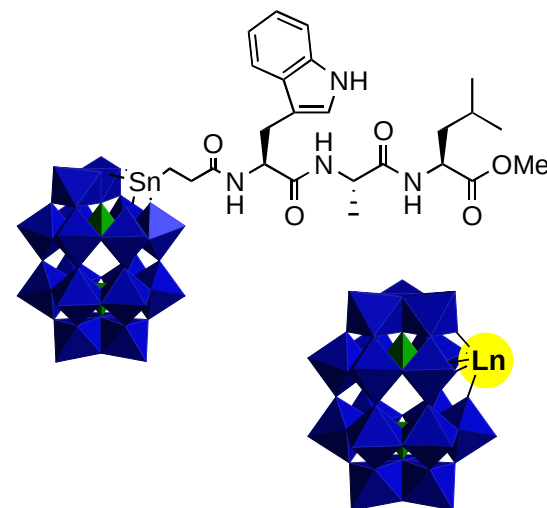
FONCTION

SYNTHÈSE

STRUCTURE

avec L. Fensterbank, C. Ollivier,
D. Curran (Pittsburgh)

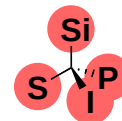
hétérochimie



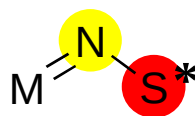
avec S. Thorimbert, B. Hasenknopf,
R. Thouvenot

polyoxométallates hybrides

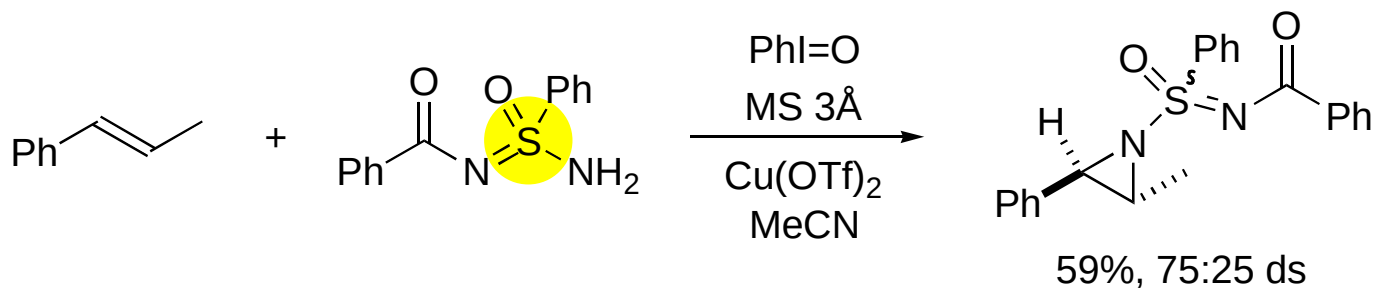
Vers des nitrènes chiraux



catalyse asymétrique avec ligands
chiraux pour l'insertion d'azote via
les nitrènes ne marchent pas bien

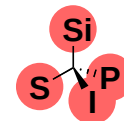


notre approche :
chiralité sur le soufre

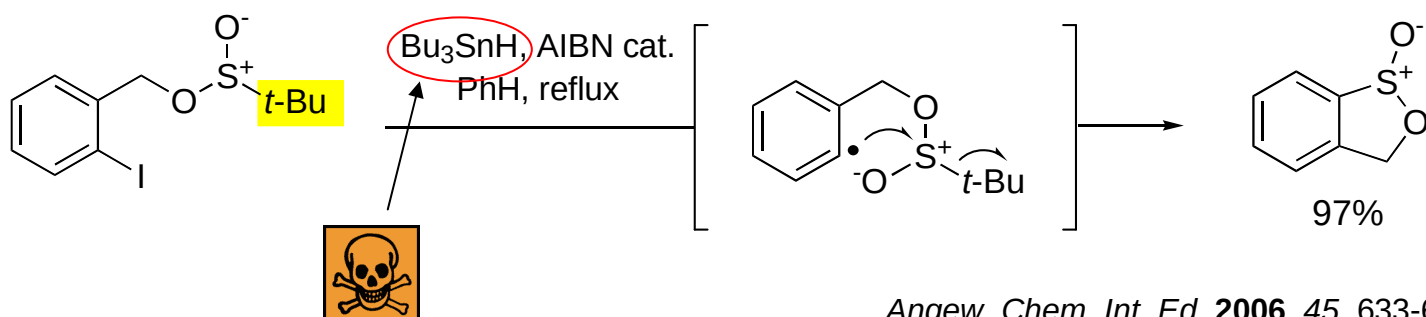


Org. Lett., **2004**, 6, 3573-3575

Hétérochimie radicalaire

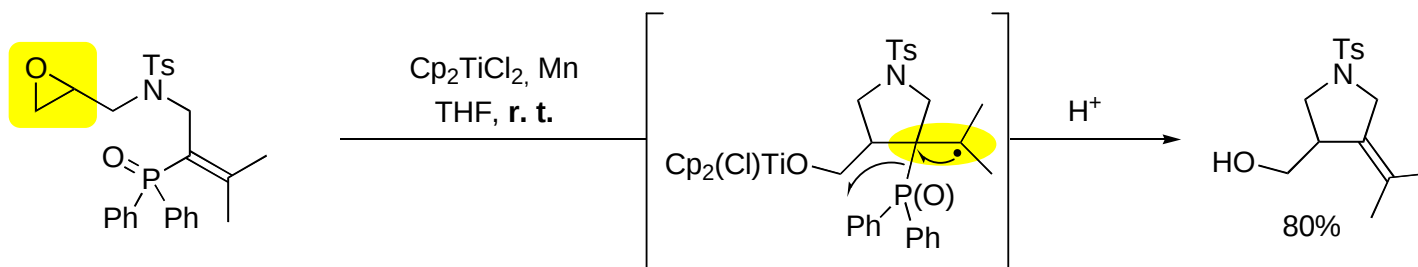


substitution homolytique de sulfures oxydés



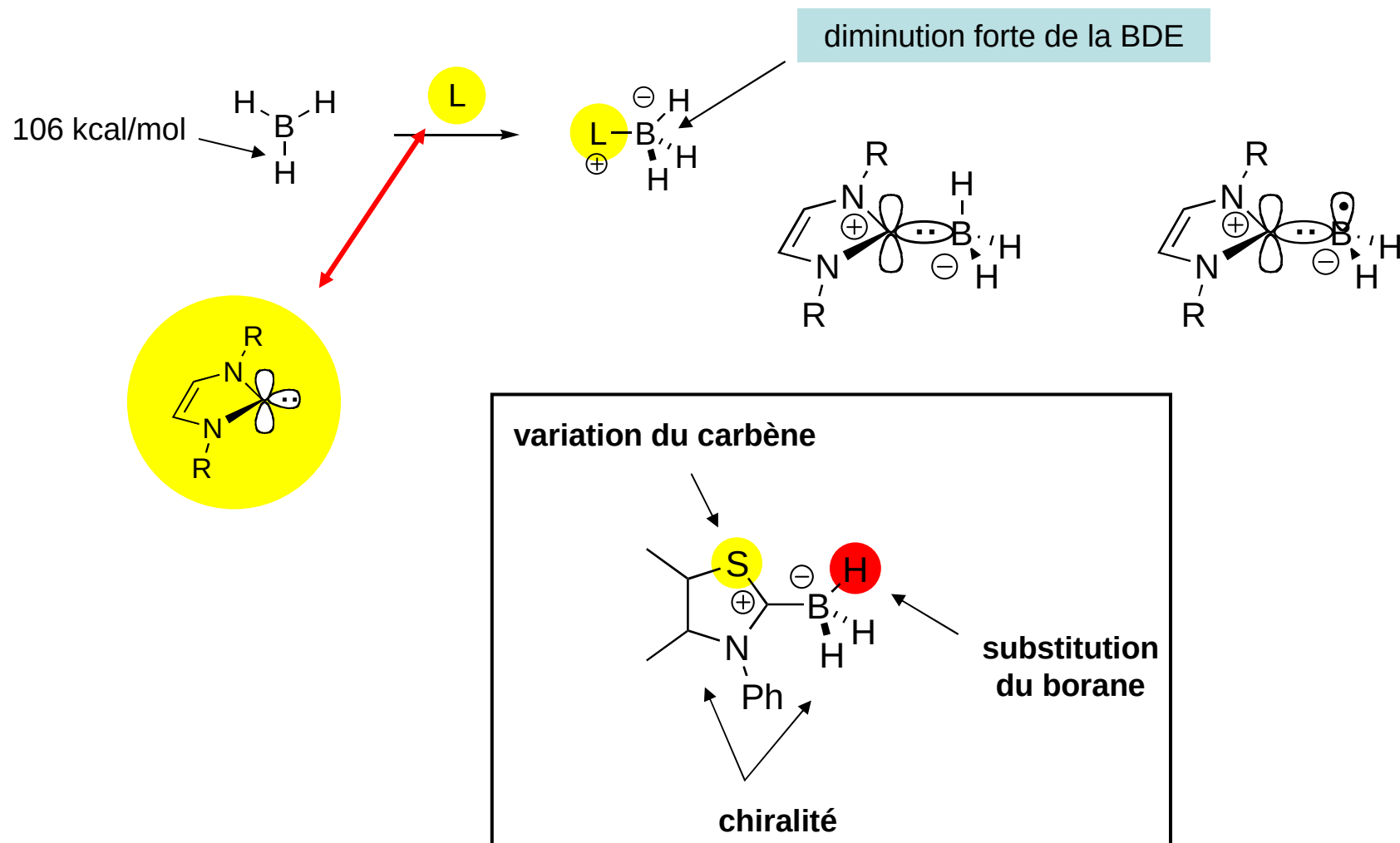
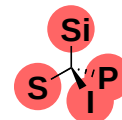
Angew. Chem. Int. Ed. **2006**, 45, 633-637

β -élimination de radicaux phosphinoyles

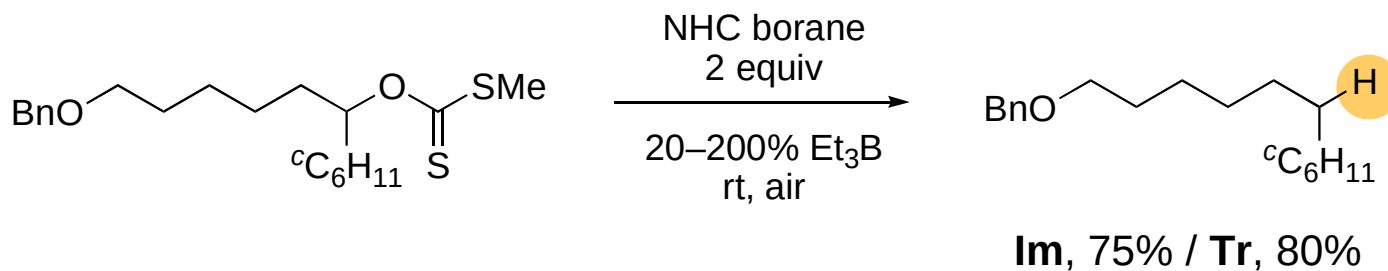
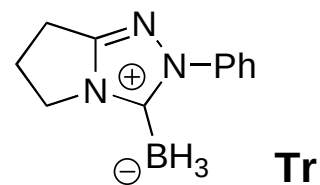
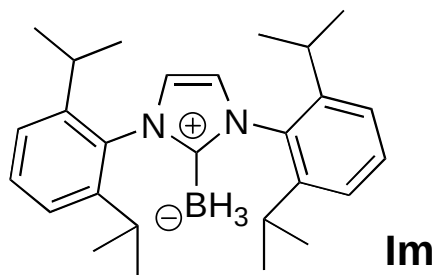
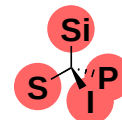


Angew. Chem. Int. Ed. **2004**, 43, 4220-4222

De nouvelles architectures pour les médiateurs radicalaires



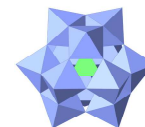
Réduction de xanthates



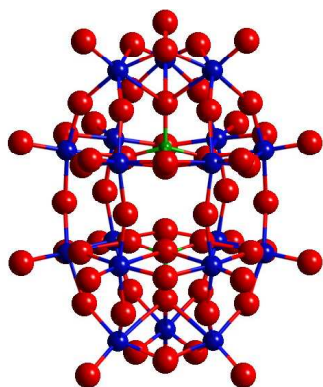
J. Am. Chem. Soc. **2008**, *130*, 10082-10083



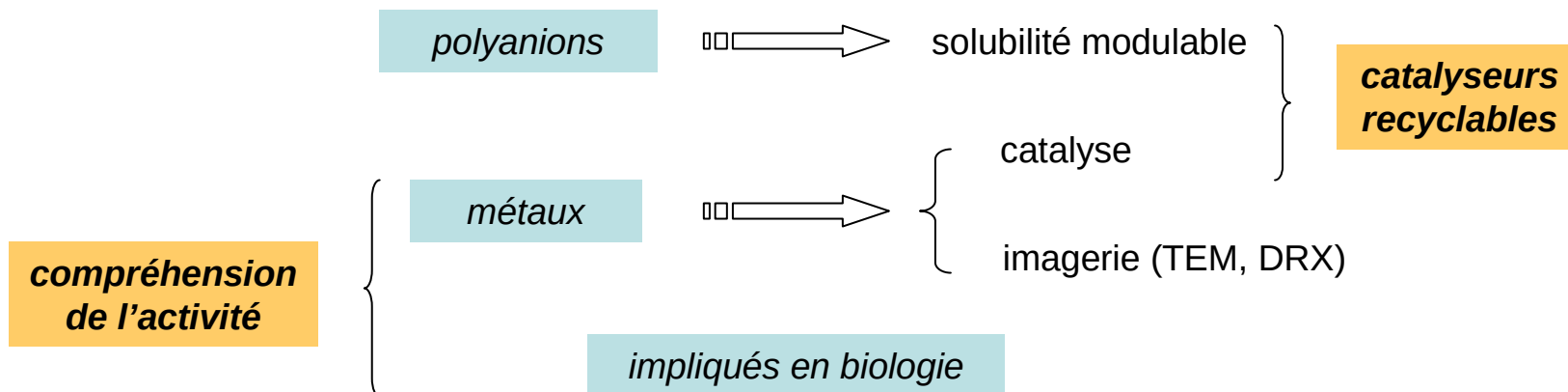
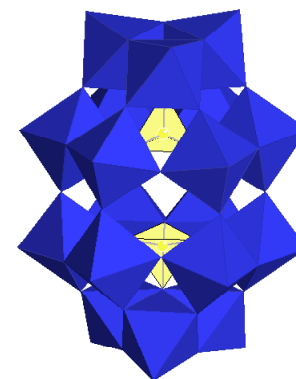
Les polyoxométallates en chimie organique : pourquoi ?



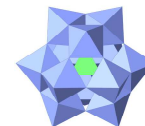
des clusters moléculaires d'atomes métalliques des premières colonnes de transition
à leur plus haut degré d'oxydation : principalement W^{VI} , Mo^{VI} , V^V



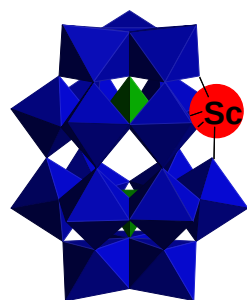
$[P_2W_{18}O_{62}]^{6-}$
structure de Dawson



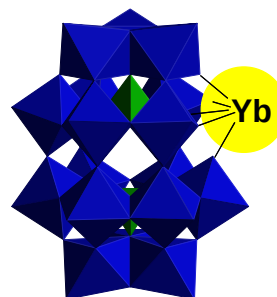
Une nouvelle catalyse par les POMs



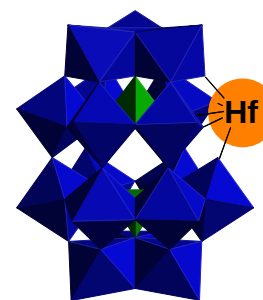
une acidité de Lewis modulable et recyclable



Sc³⁺, 75 pm

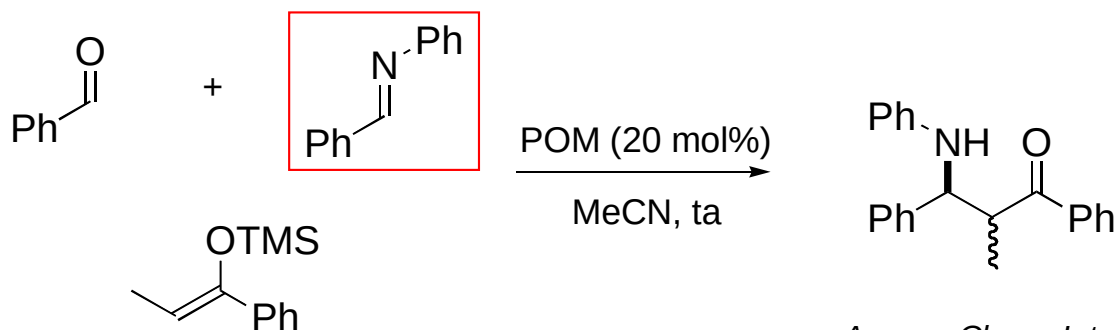


Yb³⁺, 99 pm



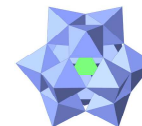
Hf⁴⁺, 83 pm

une chimiosélectivité totale envers les imines

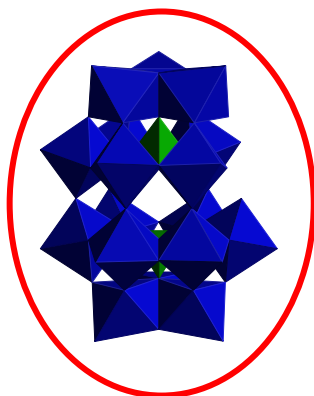


Angew. Chem. Int. Ed. **2006**, 45, 3324-3327

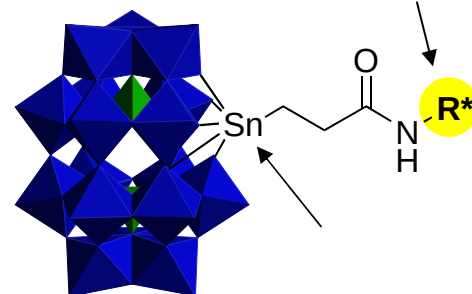
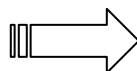
Comment accéder aux POMs énantiopurs?



Des objets chiraux mal connus jamais dédoublés



*dédoulement du
composé lacunaire*

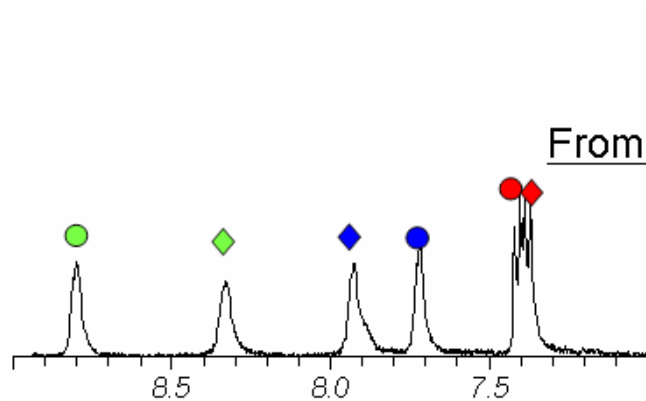
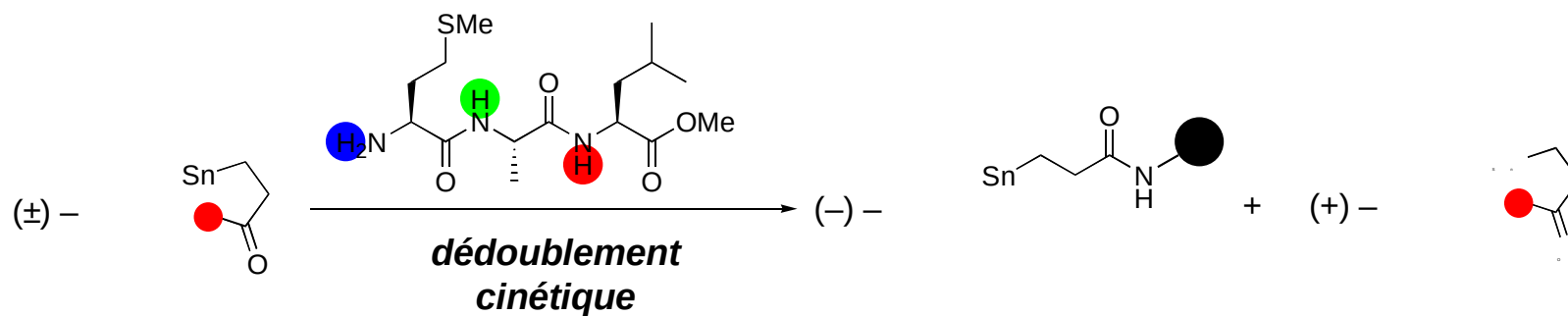
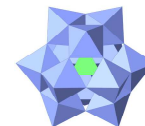


*information stéréochimique
sur le bras organique*

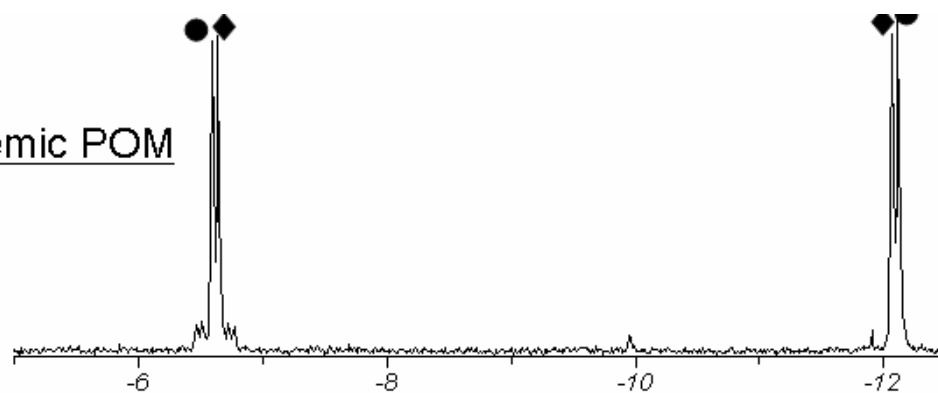
*organostannane ω -fonctionnel permet
l'agrafage de molécules organiques*

construction d'hybrides organiques spécifiques

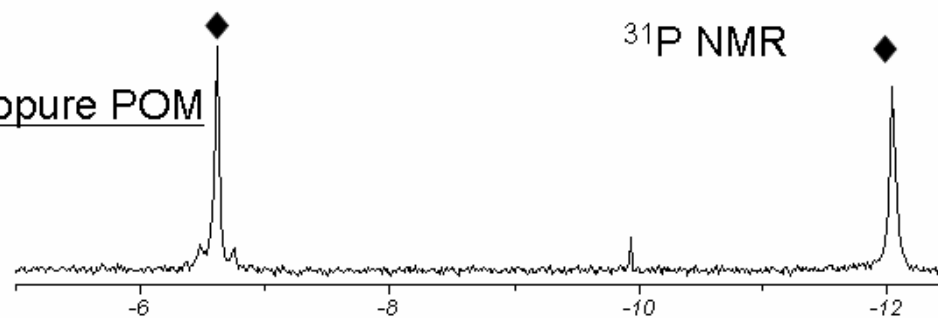
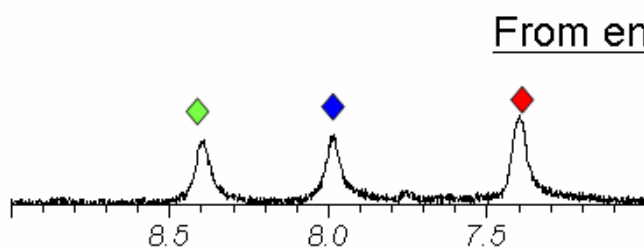
Séparation des énantiomères



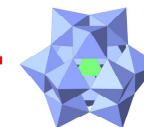
^1H NMR



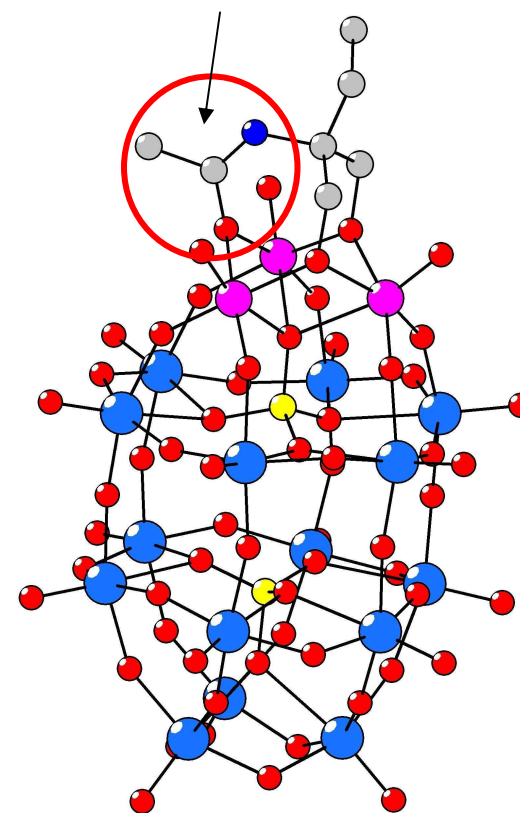
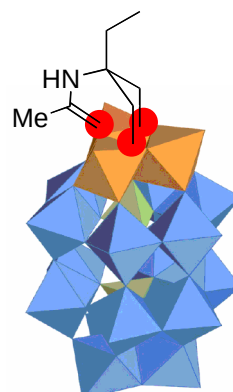
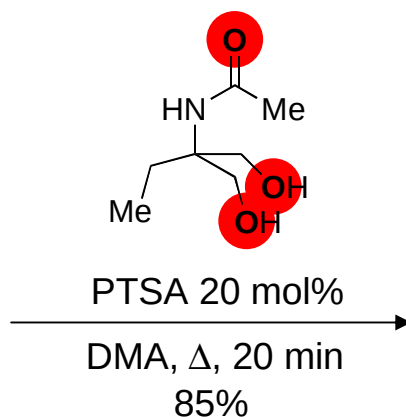
^{31}P NMR

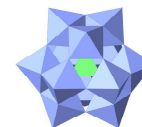


Modulation des propriétés redox de vanadates par la partie organique

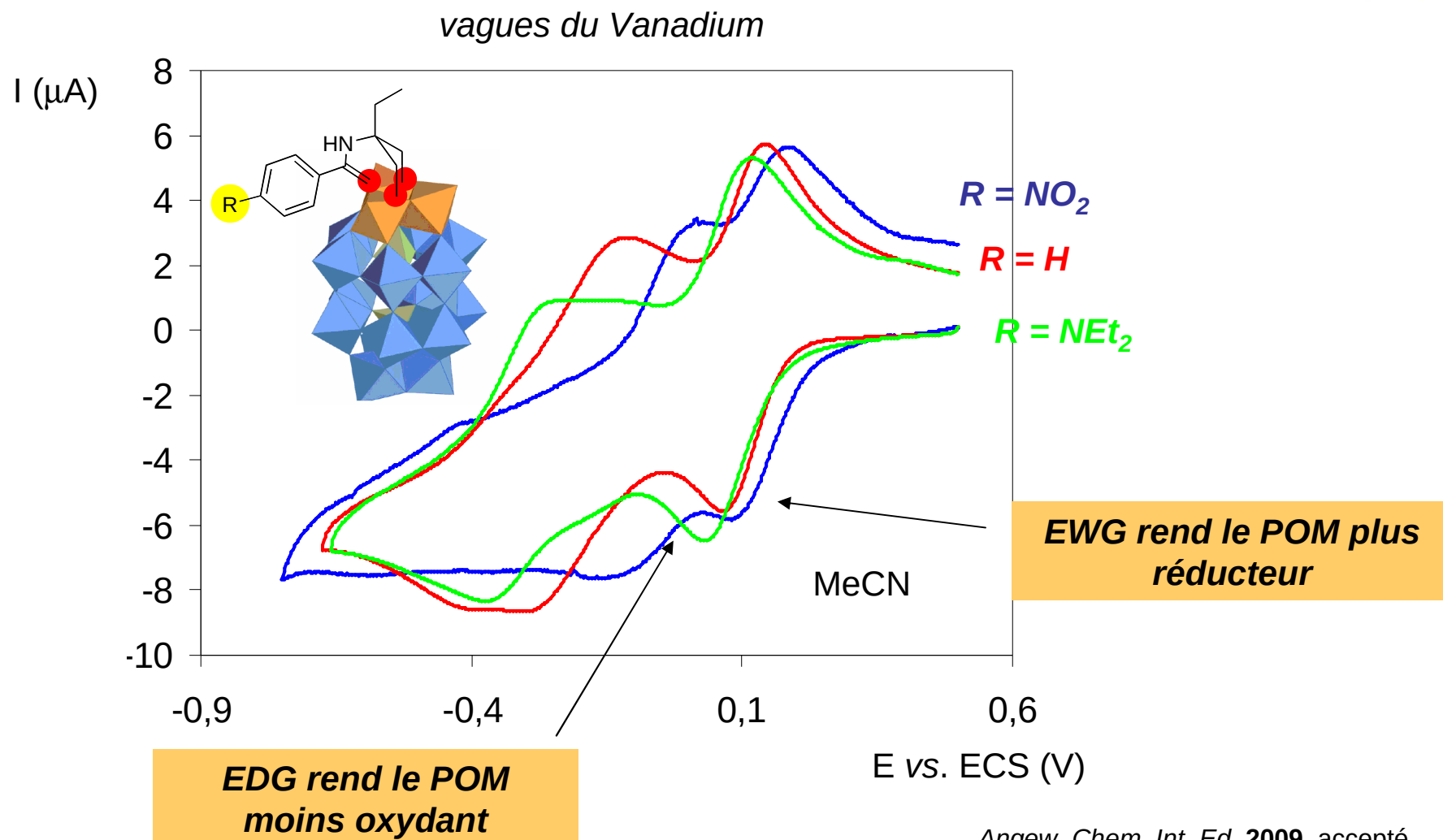


*communication
électronique POM/ligand*





Étude voltammétrique



Remerciements

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Prof. Jean-Claude Tabet, UPMC

Dr. Carlos Afonso, UPMC

Prof. Pierre Gouzerh, UPMC

Prof. Lynn Francesconi, CUNY, USA

Prof. Dennis Curran, Pitt.

Prof. Max Malacria, UPMC-IUF

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Dr. G. Lenoble (2003-2004)

Joaquim Li

Kévin Micoine

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Nathalie Dupré

Dr. Julie Oble

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