



# Un postdoc au long cours

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Electrochemistry research group



# Background



**Ph.D: (R.-N. VANNIER)**

Oxygen transport properties in the  $Ba_2Co_9O_{14}$  &  $Ca_3Co_4O_{9+\delta}$  cobaltites:  
Contribution of SIMS and LEIS



**Master II +  
Research  
internship  
(G. CORBEL –  
P. LACORRE)**

Lille  
Paris  
Chartres  
Le Mans  
Orléans



**Post.Doc.: (K. WIIK)**

Production and optimization  
of oxygen carrier materials for  
chemical looping combustion



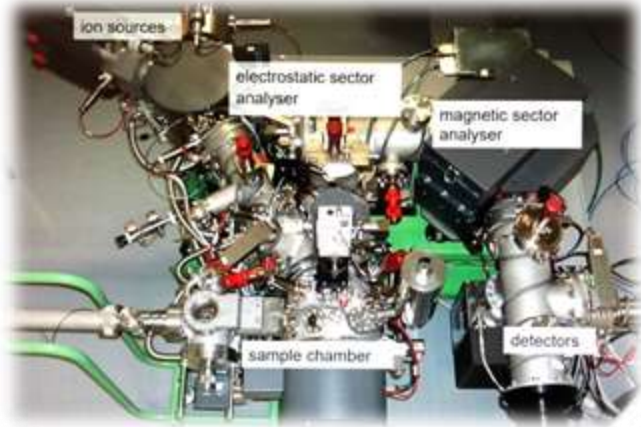
Jordbær = fraises  
Nyttår = nouvel an  
Øl = bière



TOF-SIMS V  
(ION-TOF GmbH)

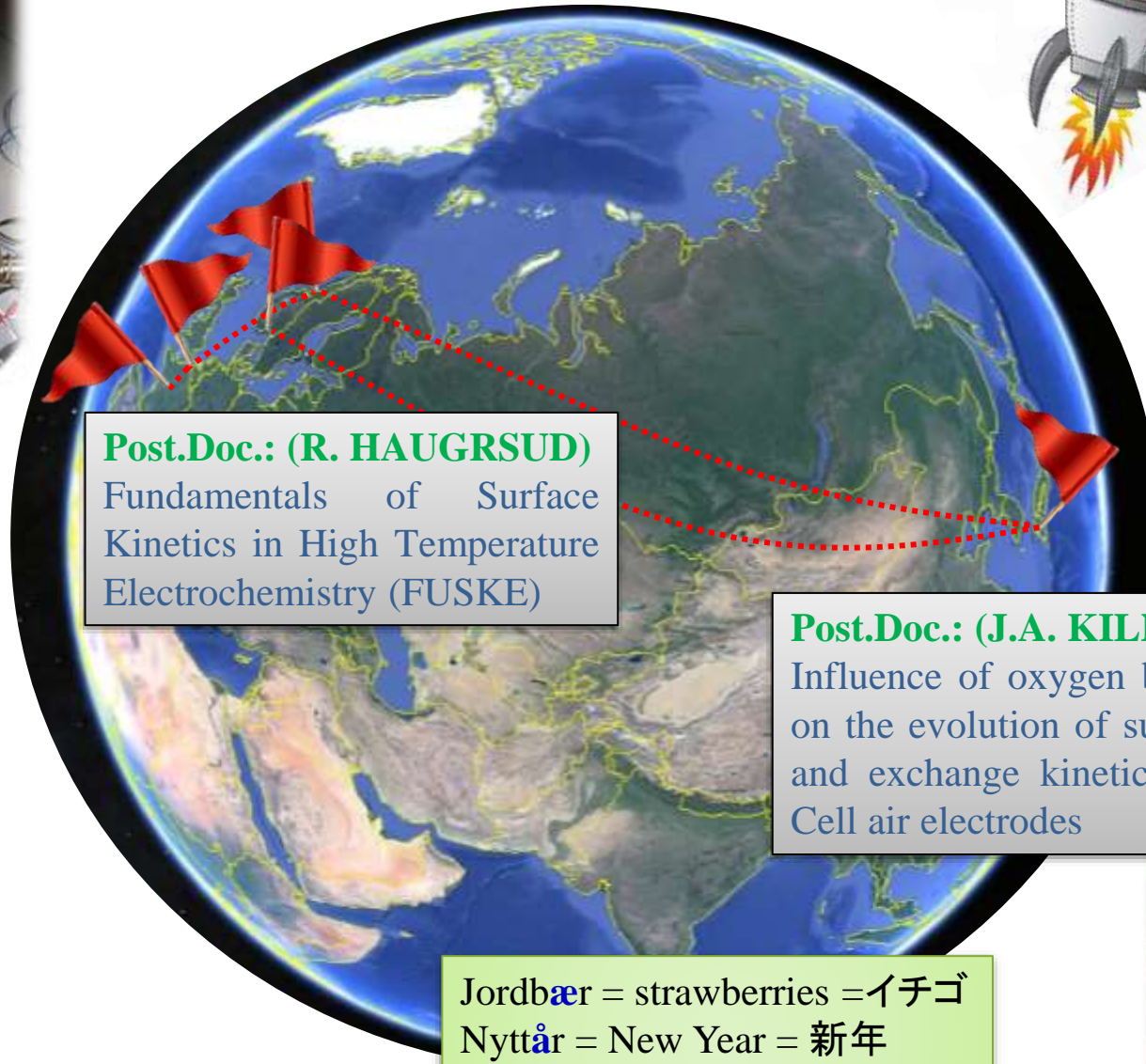


# Surface diffusion path (extended)



Magnetic sector IMS-7f ion microprobe (CAMECA)

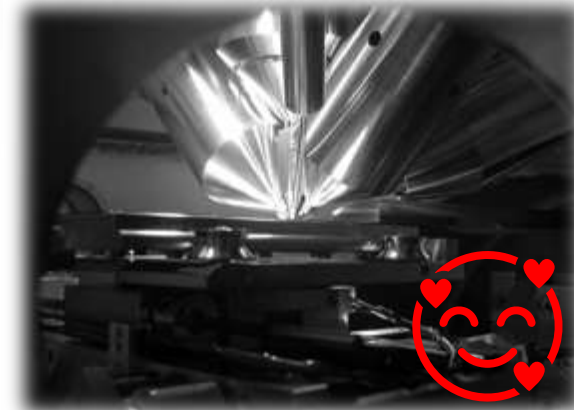
NanoTOF, Thrift V (Phi)



**Post.Doc.: (R. HAUGRSUD)**  
Fundamentals of Surface Kinetics in High Temperature Electrochemistry (FUSKE)

**Post.Doc.: (J.A. KILNER)** Imperial College London  
Influence of oxygen bearing molecules on the evolution of surface's chemistry and exchange kinetics of Solid Oxide Cell air electrodes

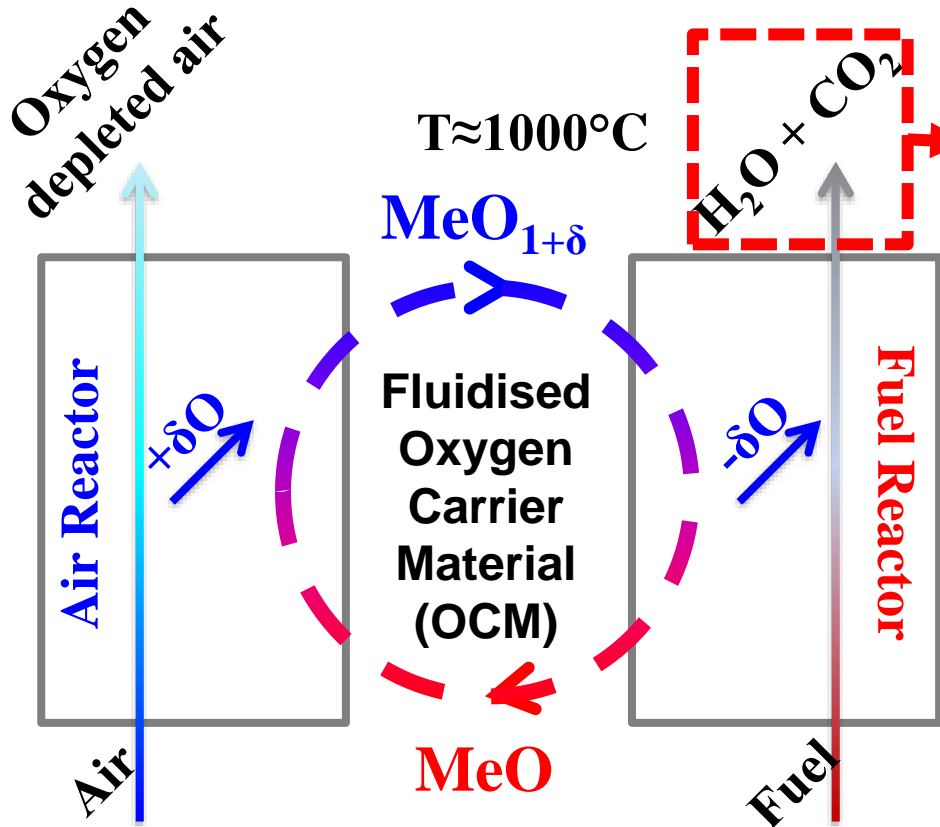
Jordbær = strawberries = イチゴ  
Nyttår = New Year = 新年  
Øl = beer = びーる / ビール



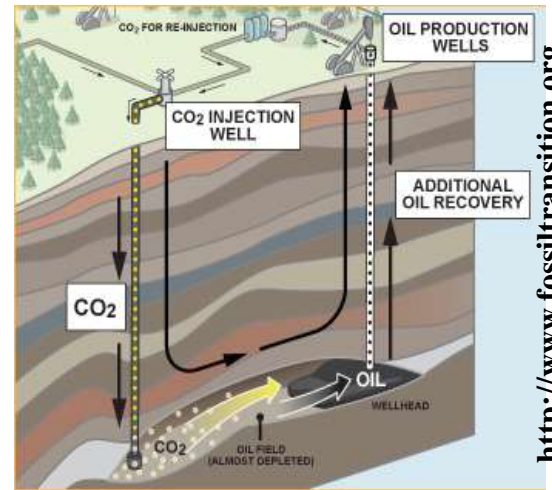
TOF-SIMS V (ION-TOF GmbH)



# Premier postdoc en Norvège

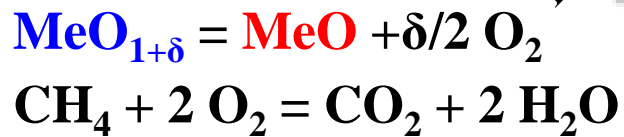


Condensation,  
Transport,  
Storage  
& use (e.g. EOR)

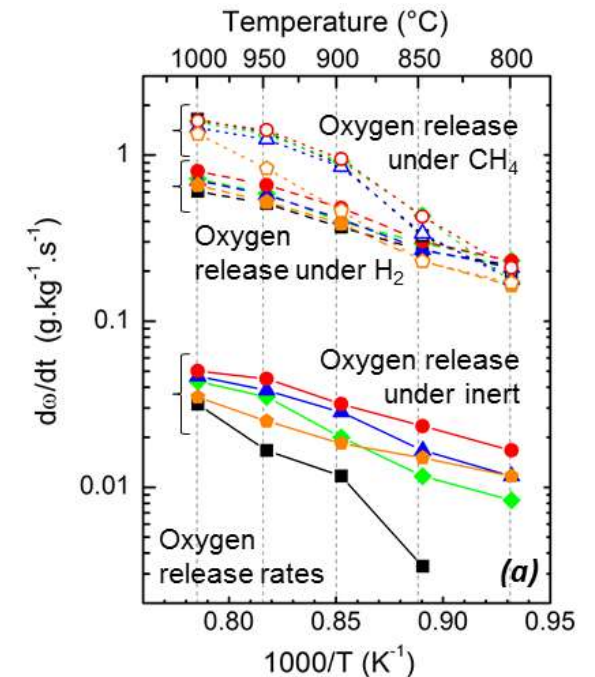


Materials based on  $\text{CaMnO}_{3-\delta}$ :  $\text{CaMn}_{0.875-x}\text{Ti}_{0.125}\text{Fe}_x\text{O}_{3-\delta}$

- low cost
- good oxygen capacity



Chemical Looping Combustion  
150 kW pilot unit near Trondheim:



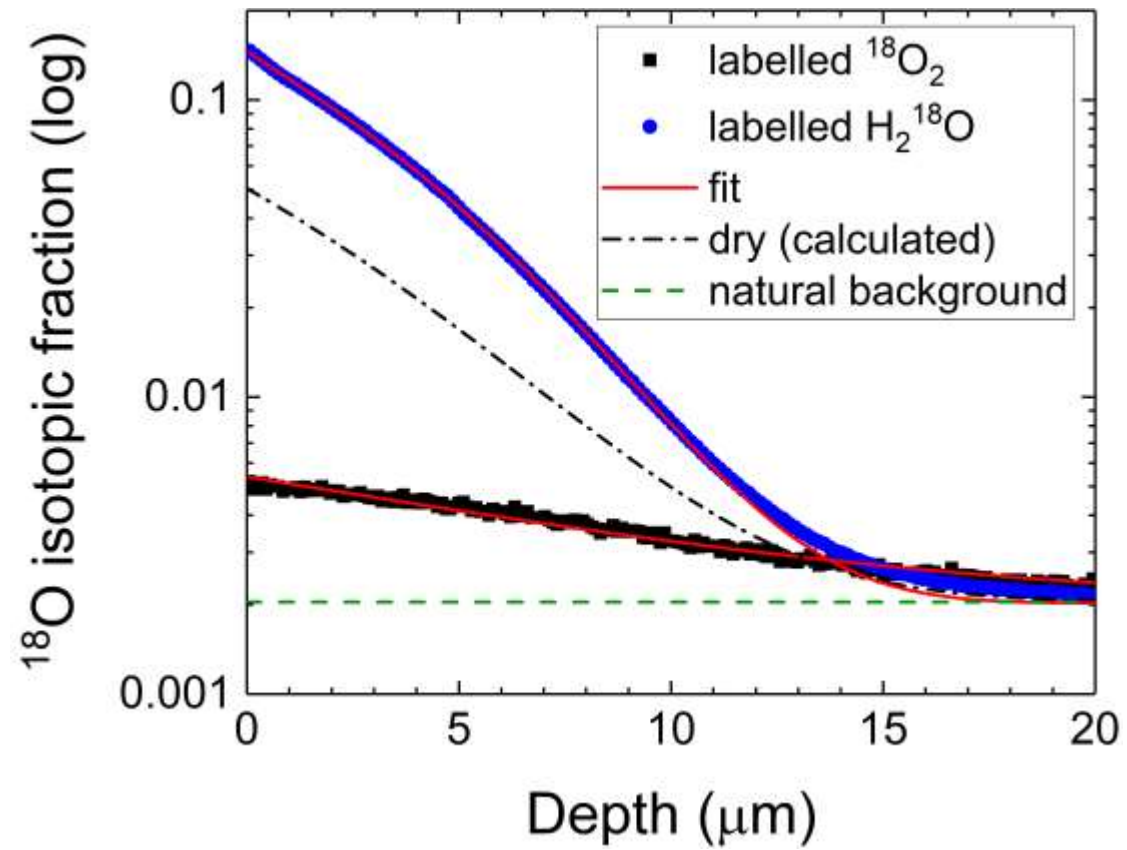
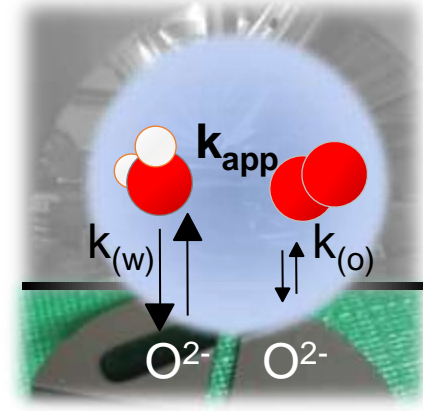
# Postdoc au Japon



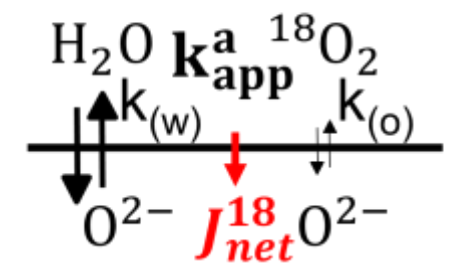
KYUSHU UNIVERSITY

Imperial College London

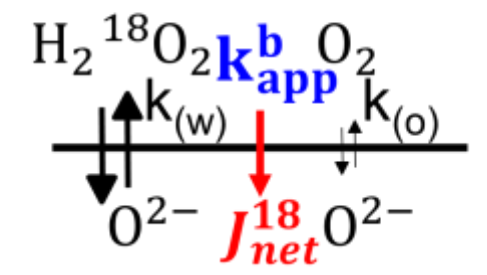
# Postdoc au Japon



(a) Labelled oxygen



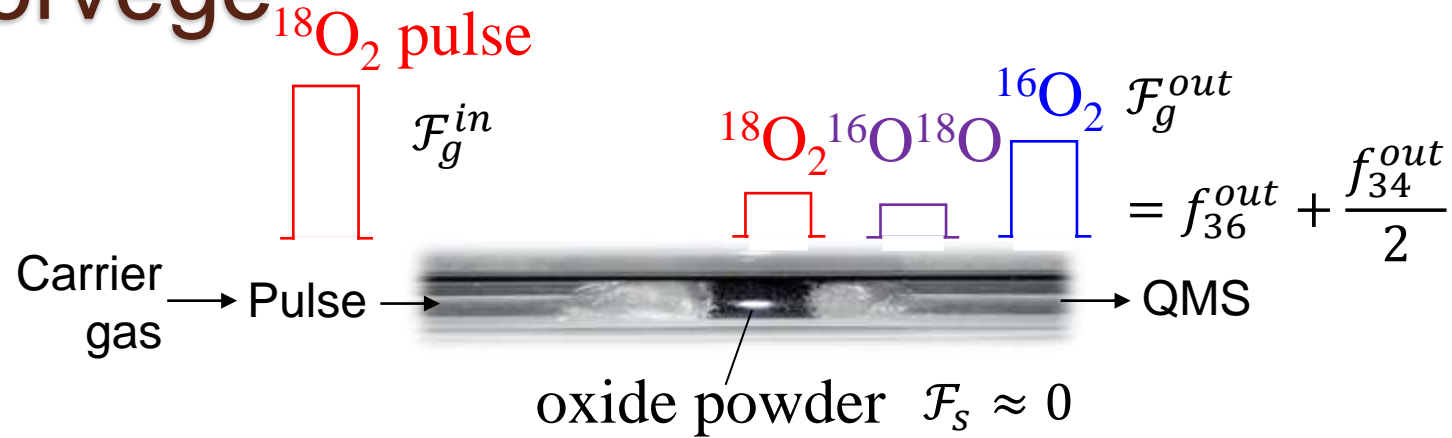
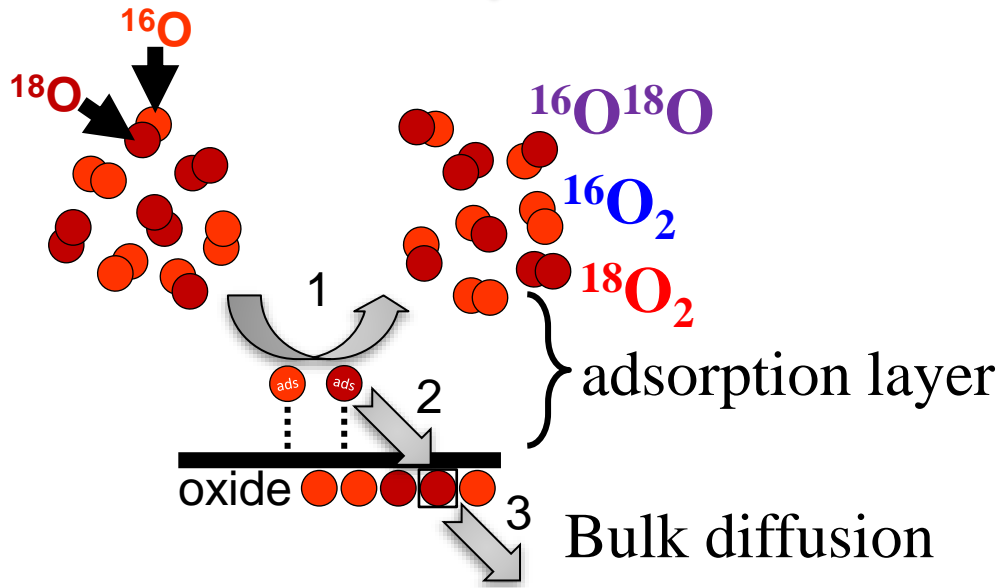
(b) Labelled water vapour



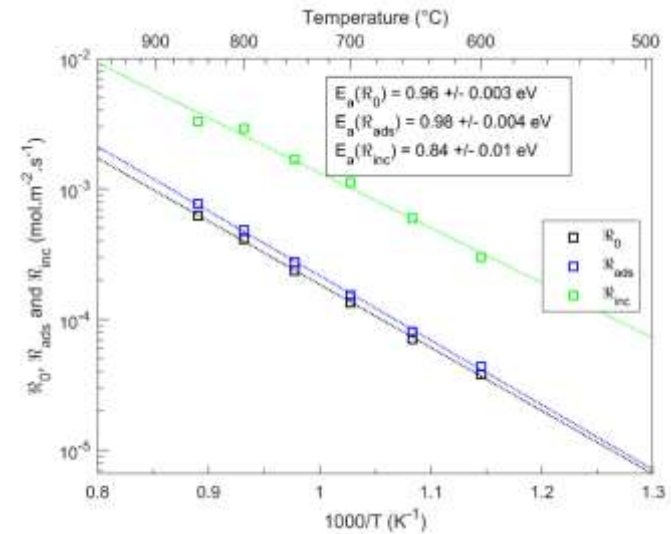
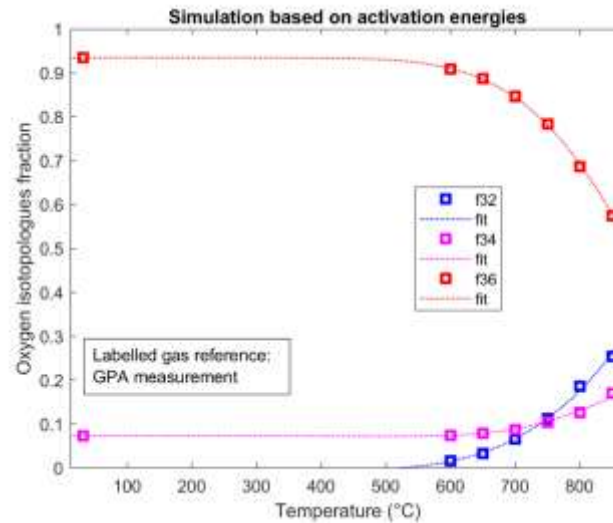
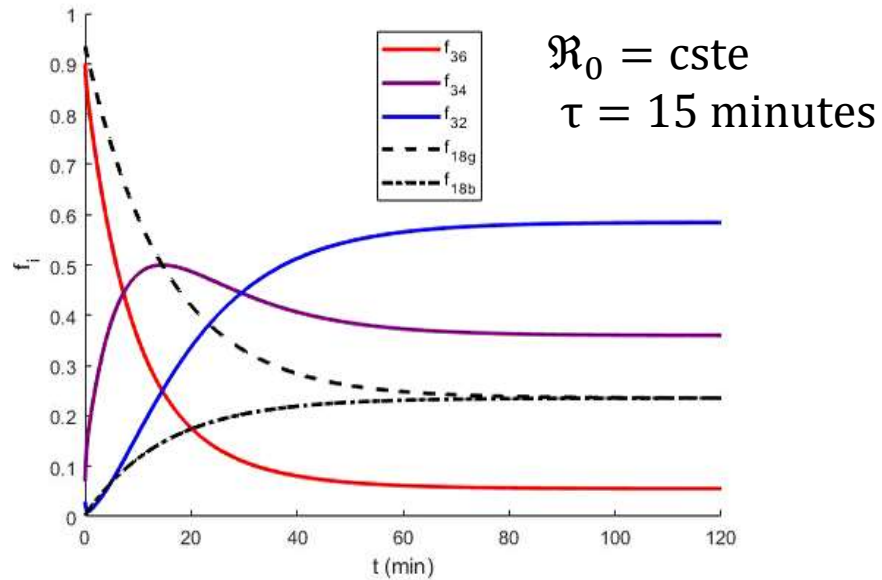
Atmosphere	$k_{(o)}$ (cm.s <sup>-1</sup> )	$k_{(w)}$ (cm.s <sup>-1</sup> )
Dry oxygen	$2.2 \times 10^{-9}$	-
Humidified oxygen	$3.2 \times 10^{-10}$	$5.7 \times 10^{-9}$

[1] V. Thoréton, M. Niania and J. Kilner, *Phys. Chem. Chem. Phys.*, 2021, **23**, 2805-2811

# Second postdoc en Norvège



Atmosphere:  
dry oxygen (0.21 bar)



# Postdoc(s) à l'étranger: du **POUR** ... ou CONTRE

ALT+0232 è  
ALT+0233 é  
ALT+0224 à

Avantages	Risques / inconvénients
Améliorer son anglais, apprendre/lire de nouvelles langues	Perdre son français, seulement baragouiner de nouvelles langues
Voyager, découvrir plein de les nouvelles choses de la vie	Devenir nomade / distance avec ami.e.s / famille
Immersion culturelle	Vivre dans une bulle d'expatriés
Nouveaux environnements / culture de travail	Temps d'adaptation ... ou adaptation tout court
Apprentissage de nouvelles techniques, perfectionnement, transmission des pratiques etc	
Développer un réseau international	Risquer de perdre son réseau métropolitain

Faites ce que je dis, pas ce que je fais: publiez vos résultats!

