

Slice selection procedure

Vertical sample displacement device installed on the upper part of a vertical wide-bore magnet (89 mm diameter, 4.7T). In the foreground, the step-by-



**Stepper motor for
sample rotation**

**Gear driven by the
endless screw**

Sample holder

**Stepper motor
for sample translation**

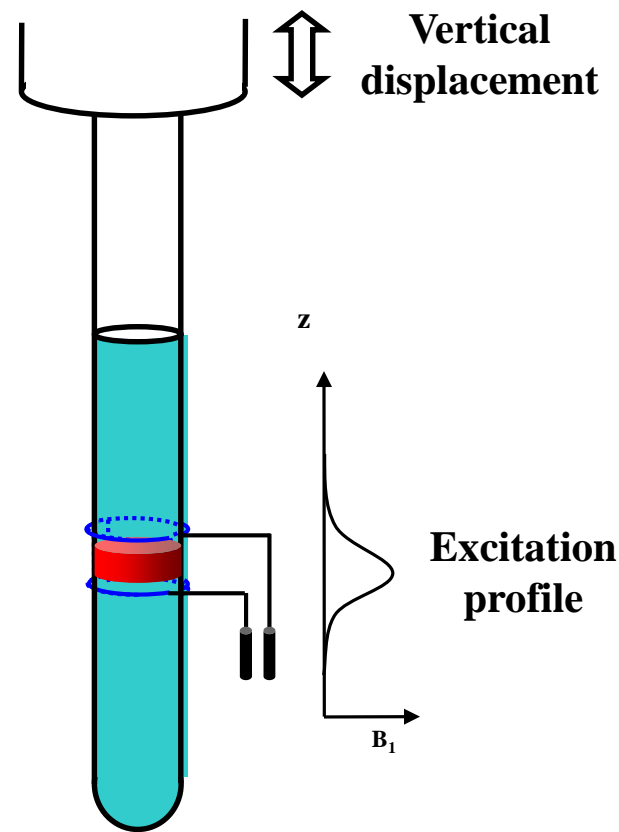
Imaging by displacing the sample

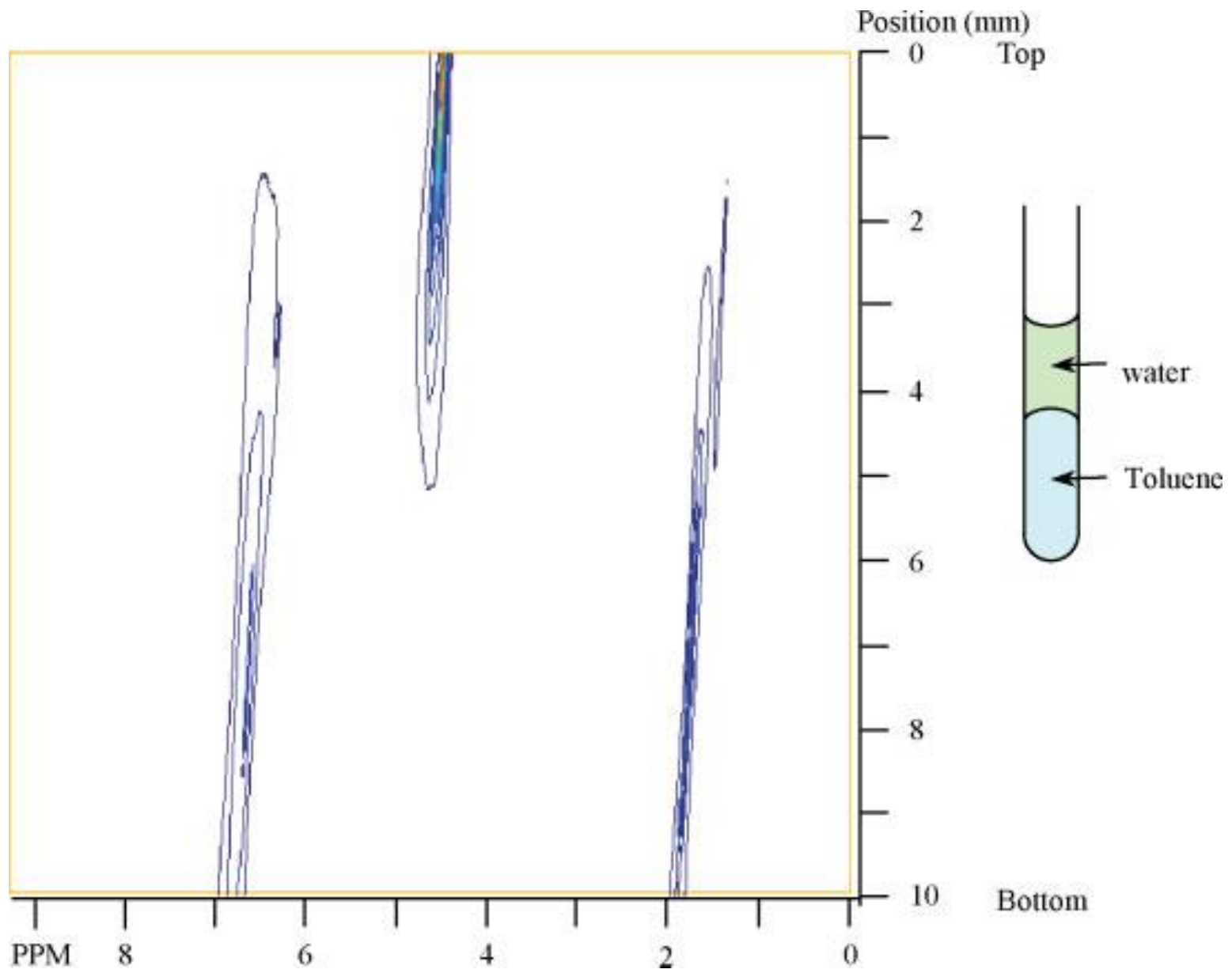
Magn.Reson.Chem., 2006, 44, 311-317

Principle of experiment

Blue: sample

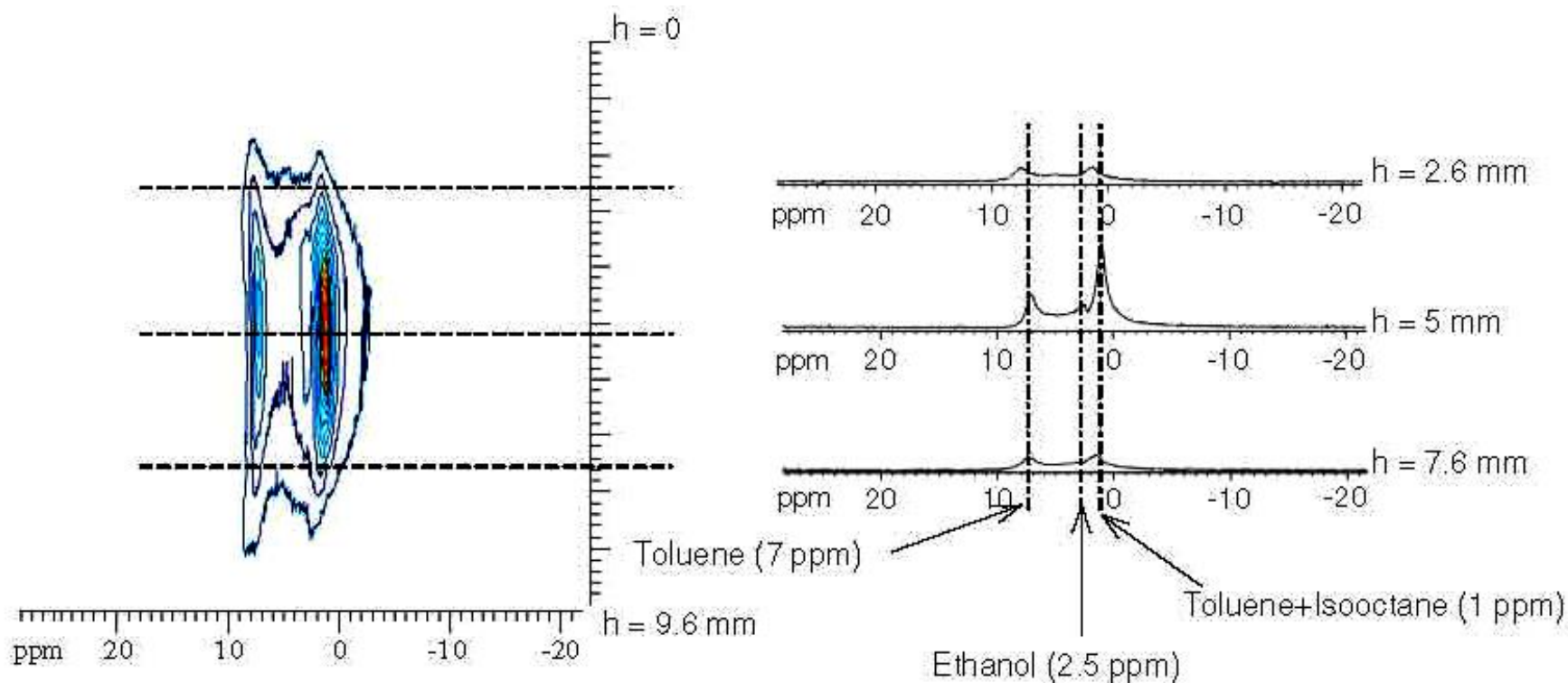
Red: zone of excitation





HDPE which has been in contact with a mixture of solvents for 6 weeks
(isooctane 45 %, ethanol 10 %, Toluene 45 %)

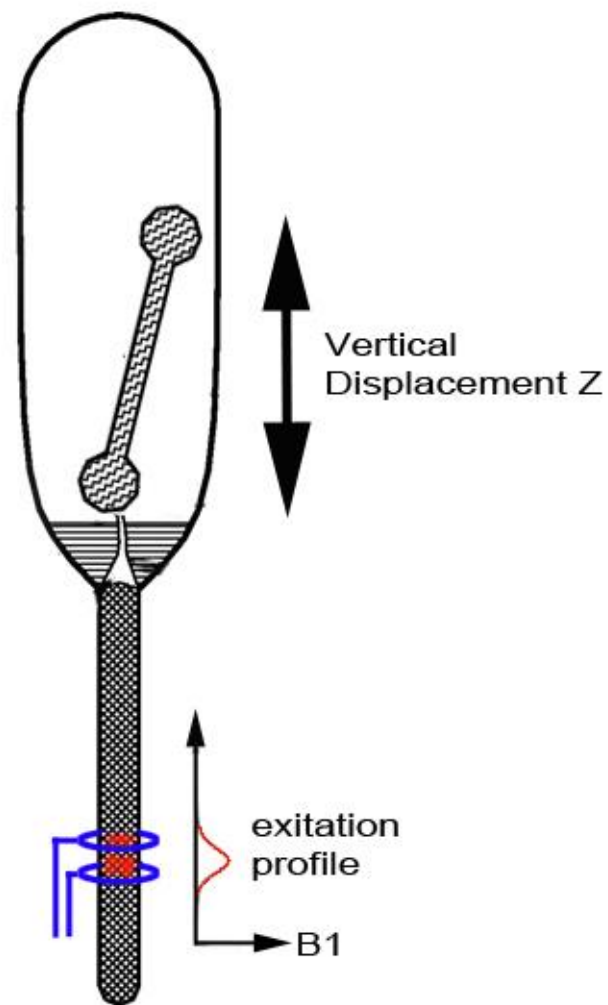
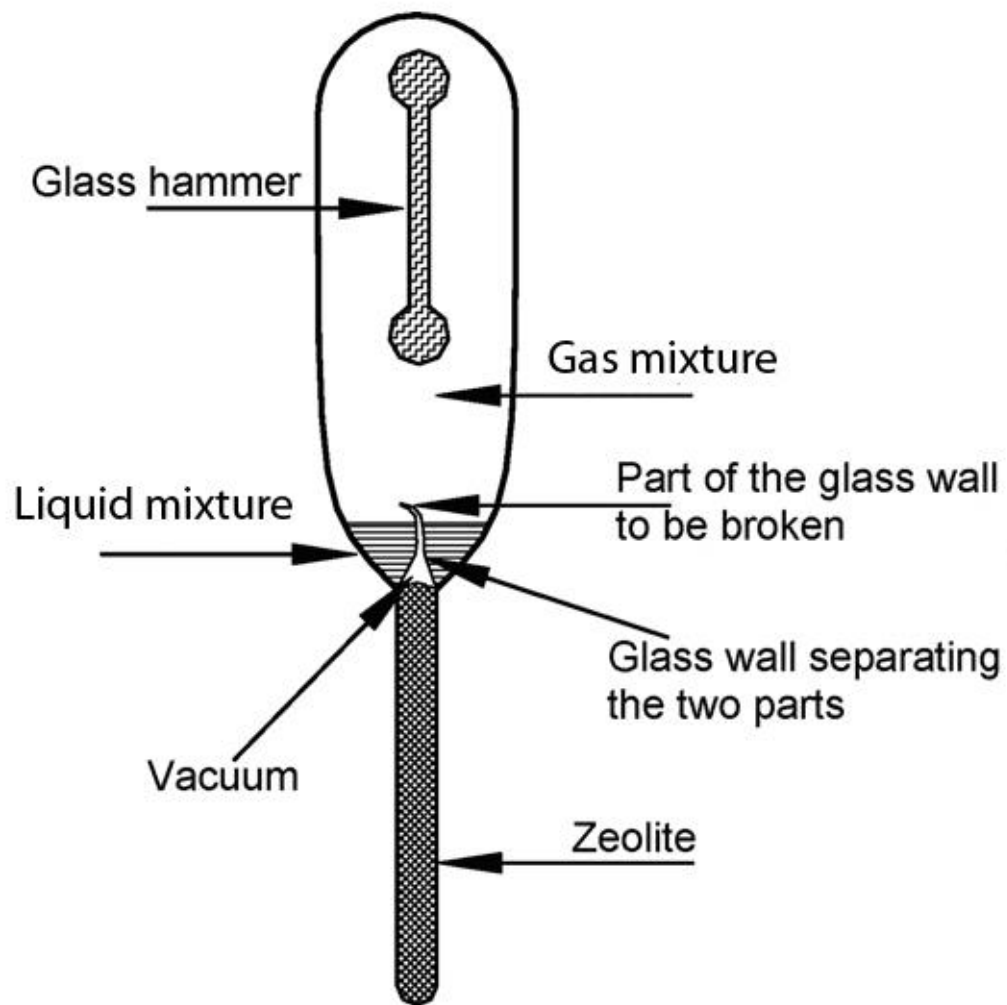
Magn.Reson.Chem., 2006, 44, 311-317



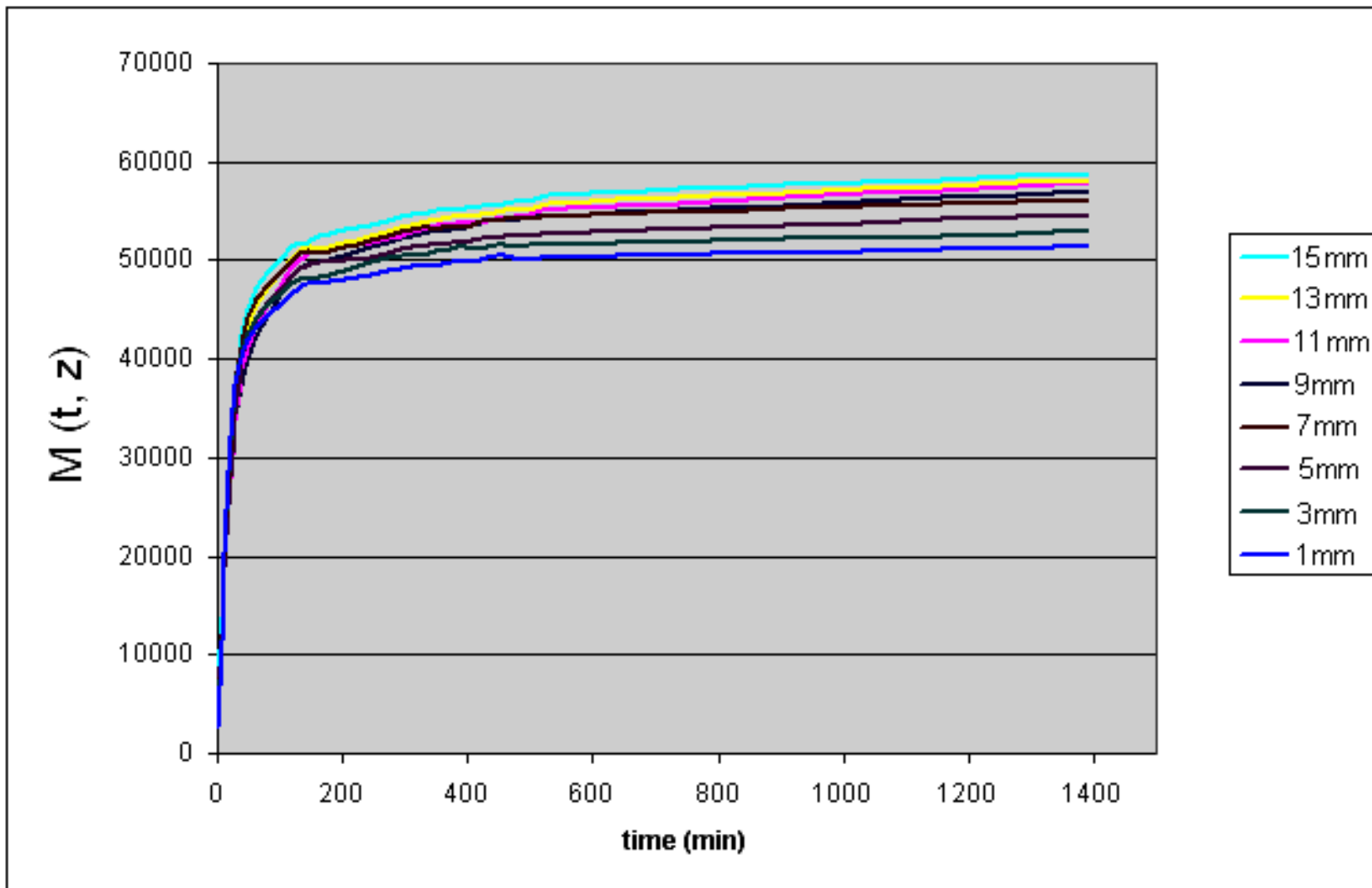
Diffusion of One gas

Michel Petryk , Sebastien Leclerc , Daniel Canet , Jacques Fraissard

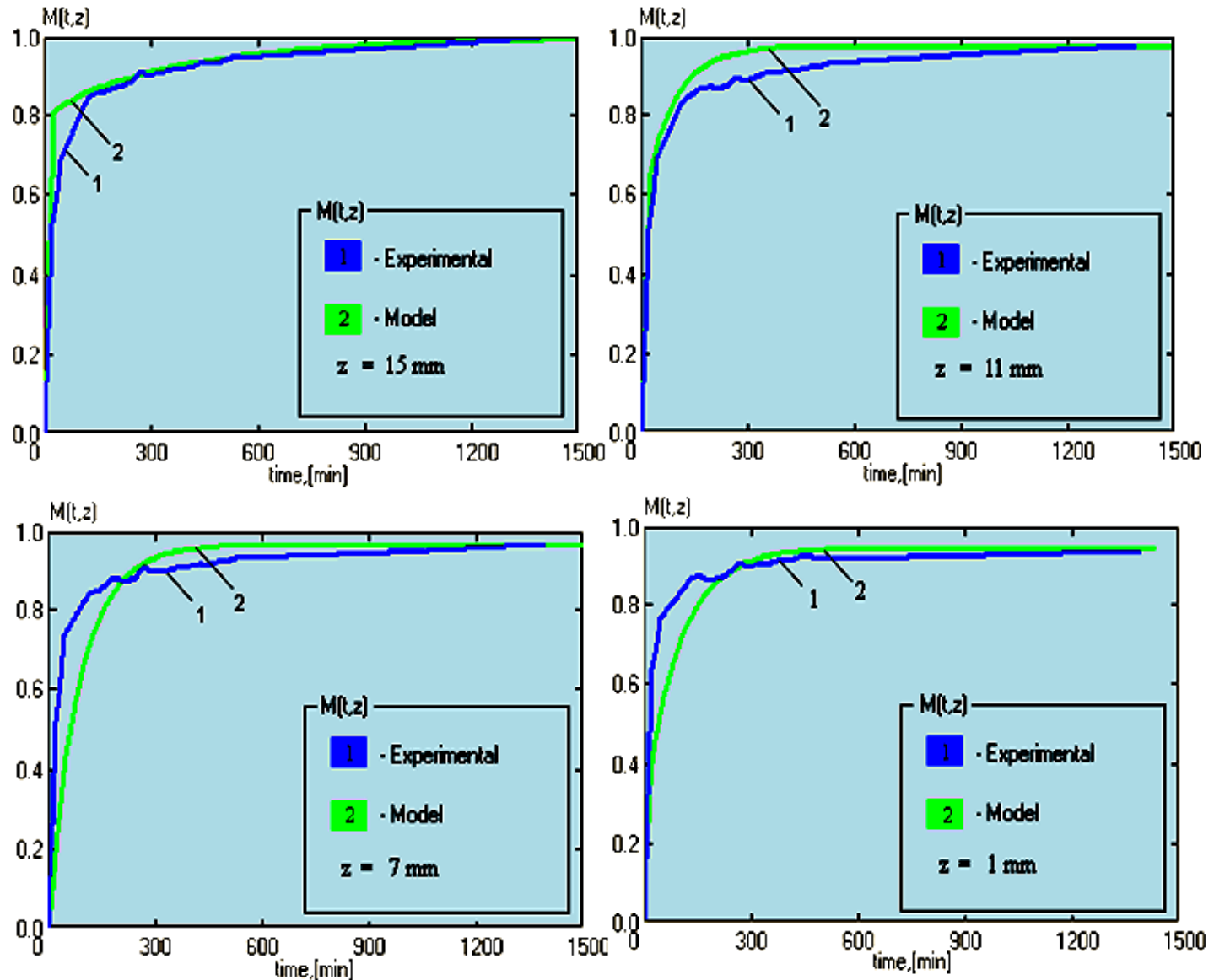
Catalysis Today, 139 (2008) 234-240



Adsorbed benzene (a.u.) against time in each layer k of the bed, from $z = 15$ mm (layer in contact with the gas phase) to $z = 1$ mm (layer near

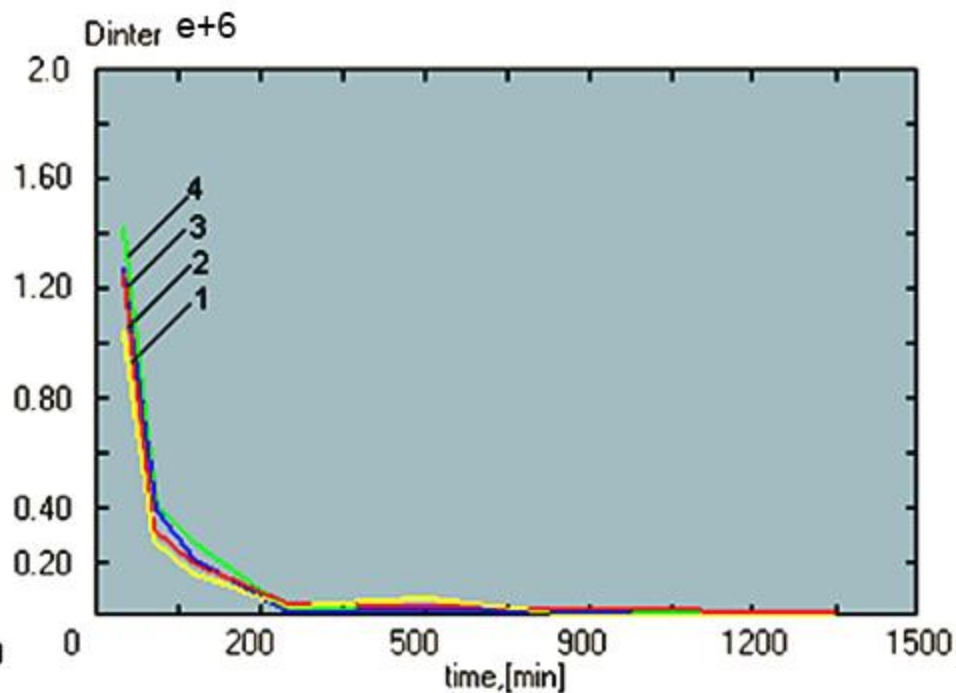
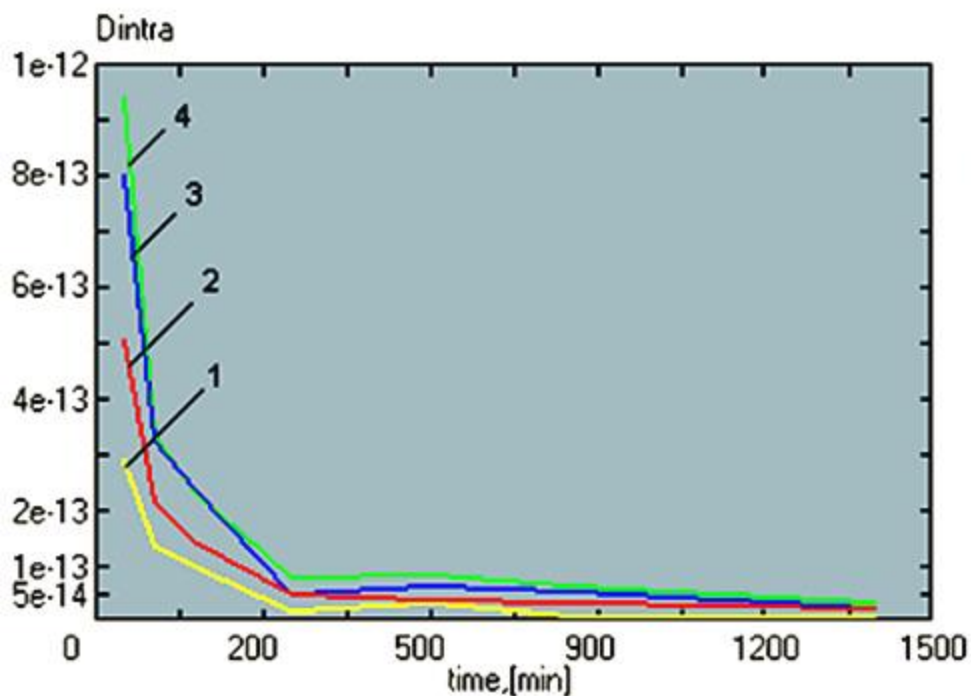


Model and experimental kinetic curves of dimensionless total adsorbed mass versus time t (min) for different values of distance (mm) from the bottom of the zeolite bed z .

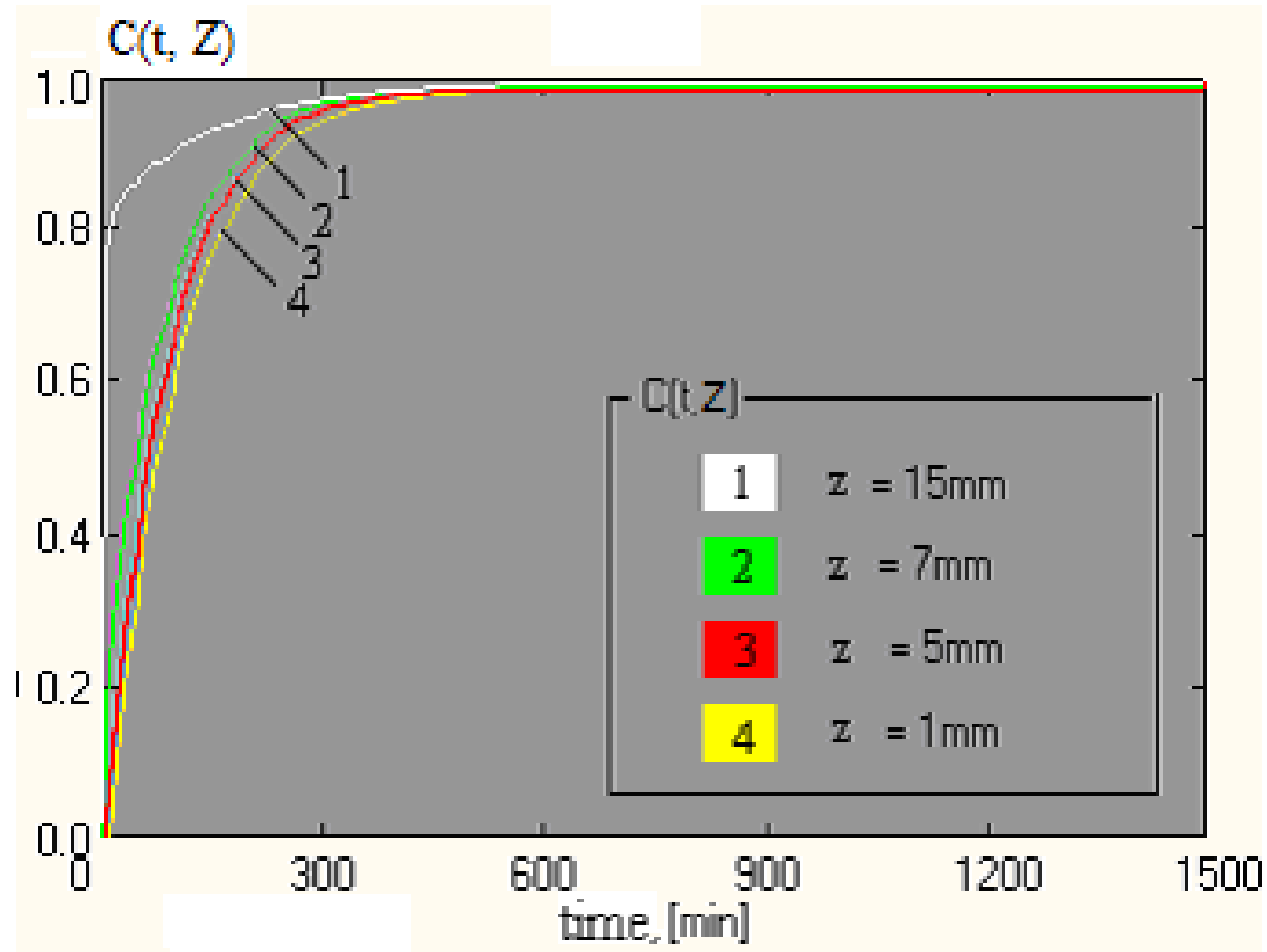


Benzene diffusion coefficient profiles D_{intra} and D_{inter} (m^2/s) against time t (min)

Curves: 1) $z = 14$ mm; 2) $z = 10$ mm; 3) $z = 7$ mm; 4) $z = 3$ mm.

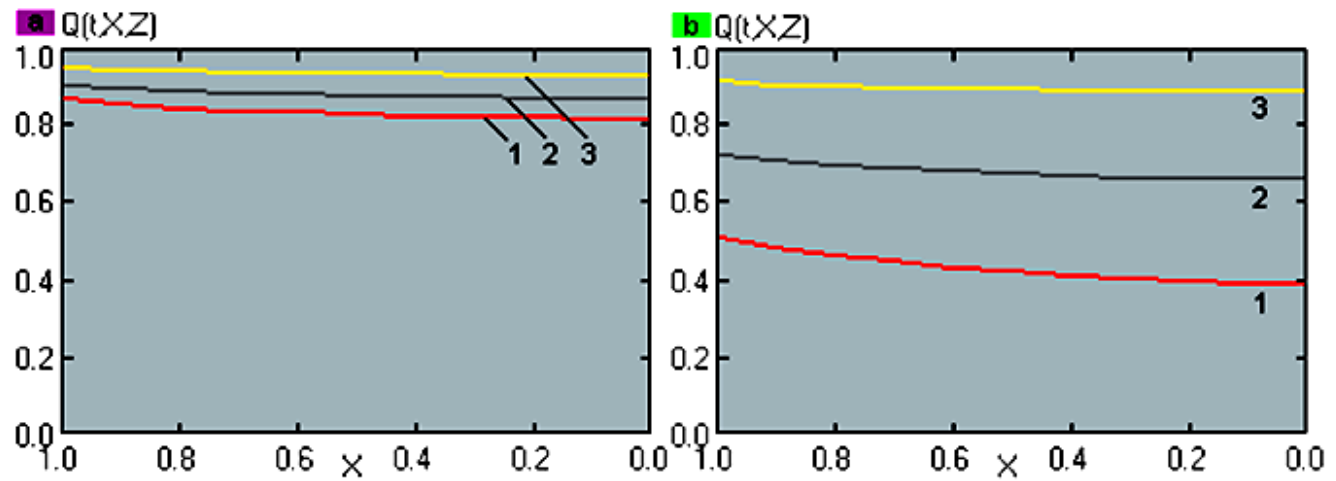


Intercrystallite concentration profiles versus time t (min) for different values of the distance z (mm) from the bottom of the bed.

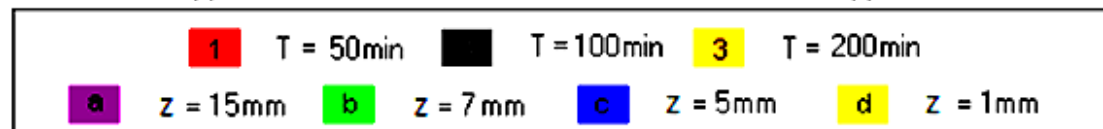
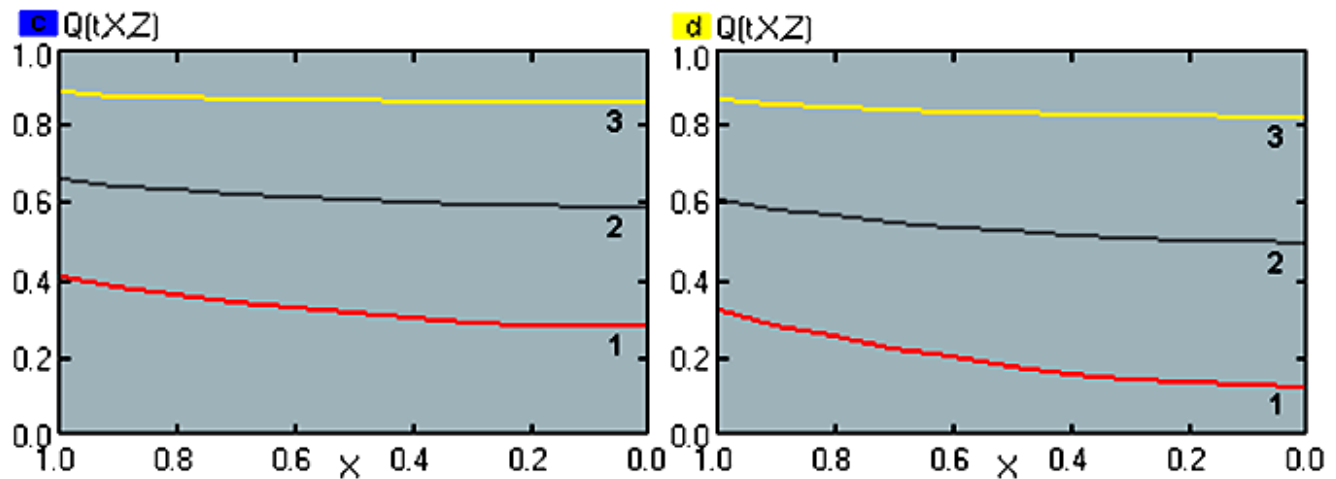


Concentration profiles, $Q(t, X, z)$, in zeolite crystallites located at different positions z (mm) in the bed, and for different times t (min)

Z= 15 mm
Z=7 mm



Z= 5 mm
Z= 1 mm



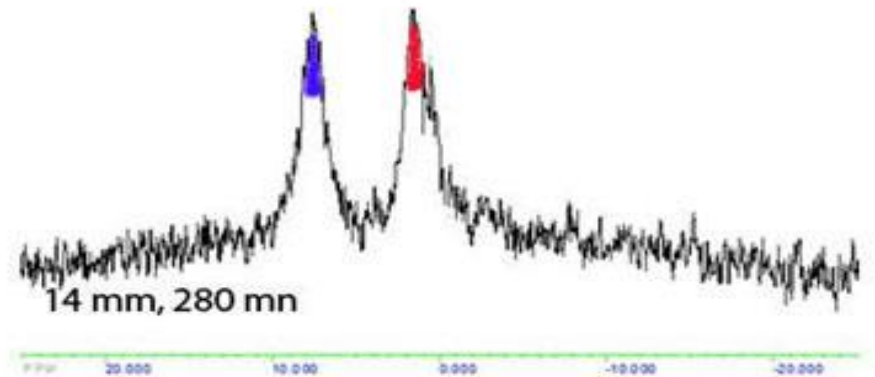
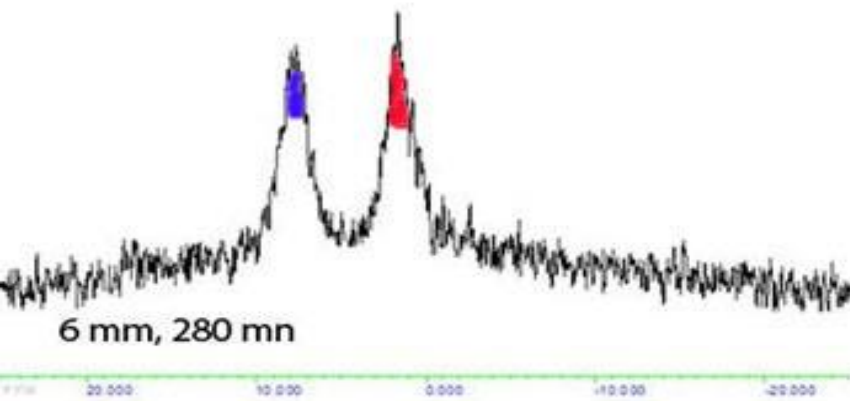
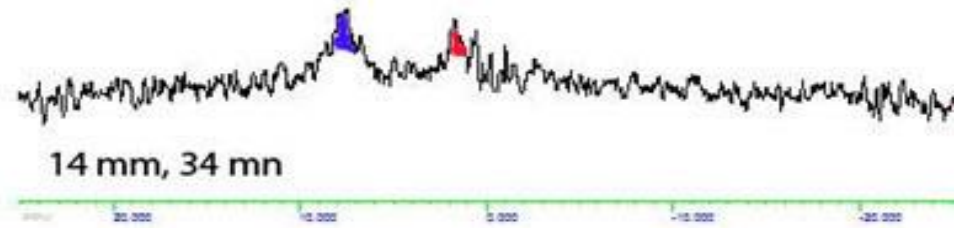
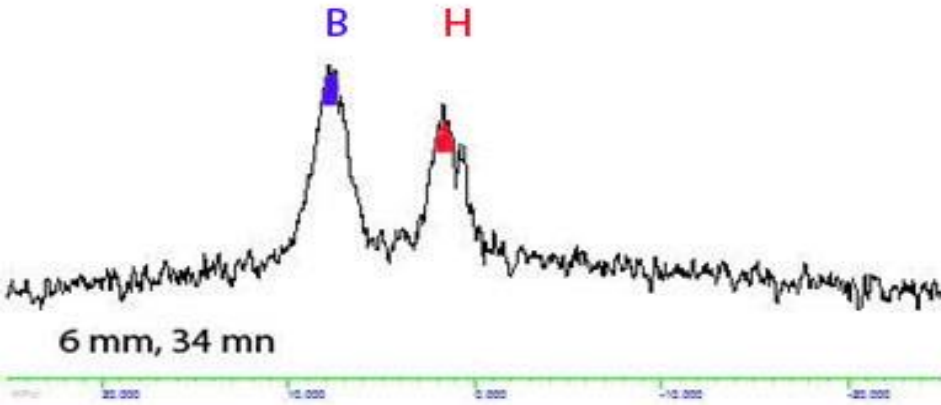
Diffusion of two gases

Michel Petryk , Sebastien Leclerc , Daniel Canet , Jacques Fraissard

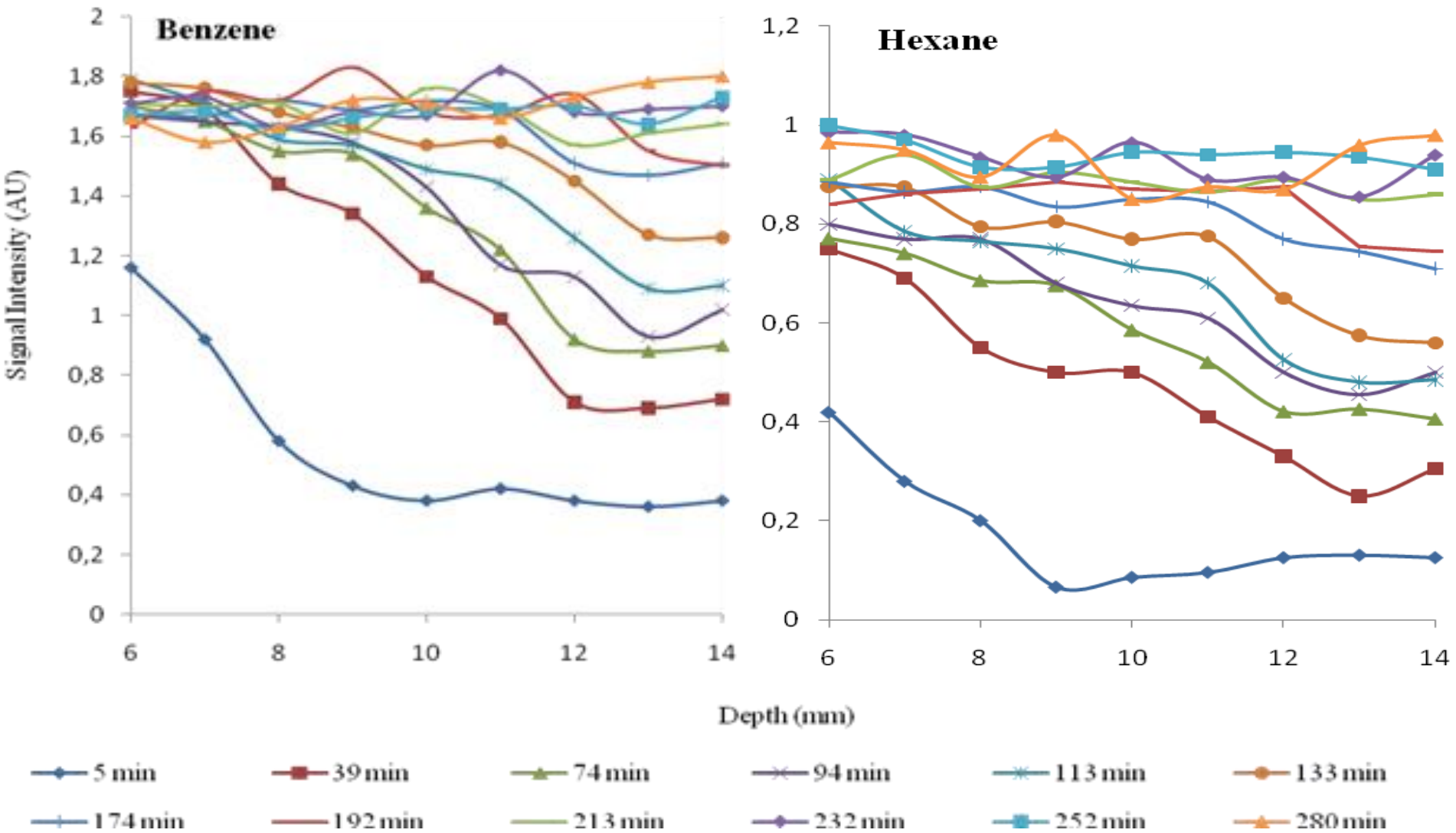
COST Action D36, Finam workshop, Fuengirola, 17-20 May 2011

Catalysis Today, *in press*.

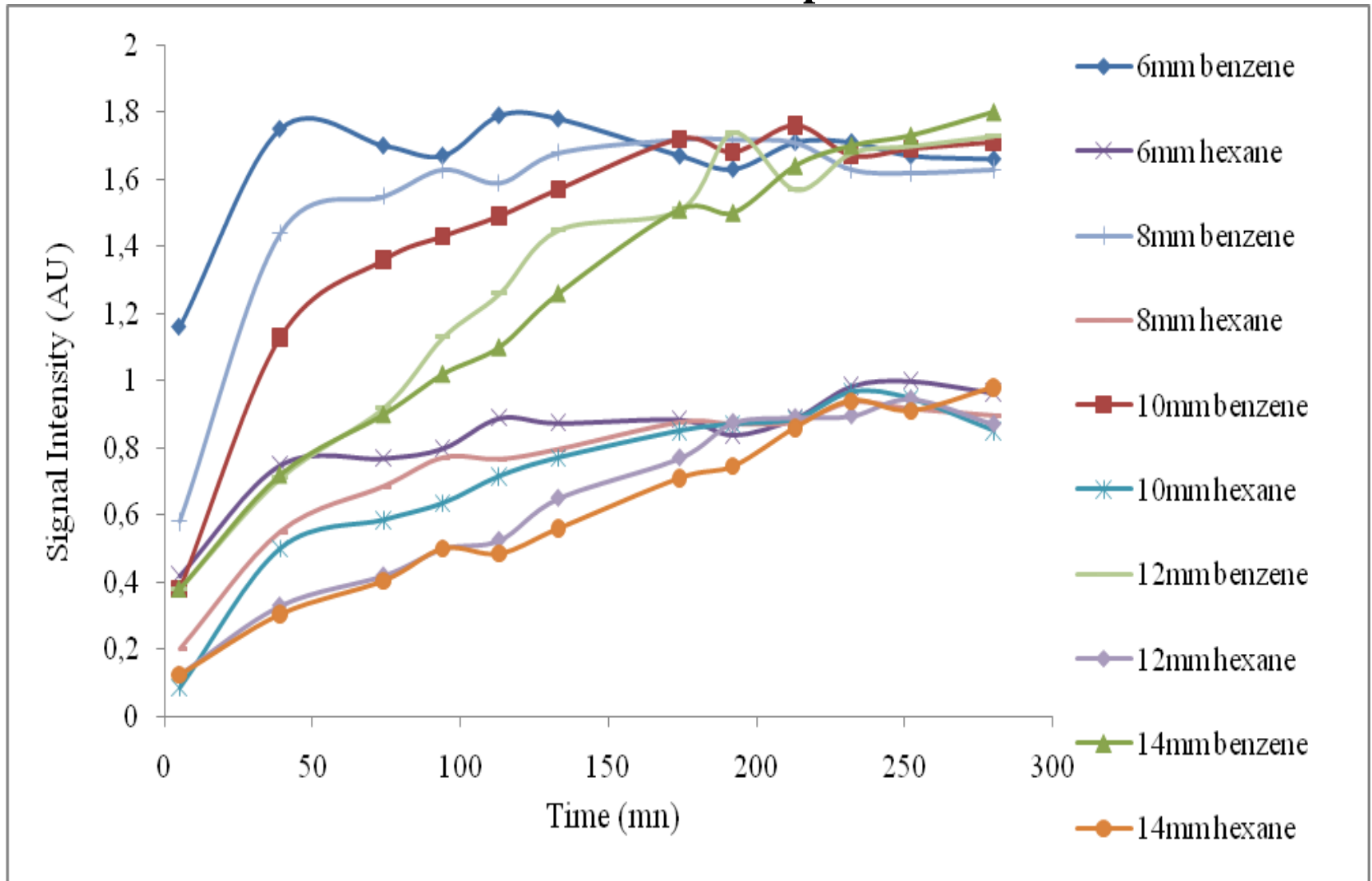
Signal intensity against time. Depth: 6 and 14 mm



Benzene and hexane concentrations along the sample (6 to 14 mm), for different diffusion times.



Time variation of the benzene and hexane concentrations at different levels of the sample



End of NMR imaging