FORMAS EN NANOPARTICULAS METALICAS SOPORTADAS: DESDE NANOFLORES A NANOCUBOS

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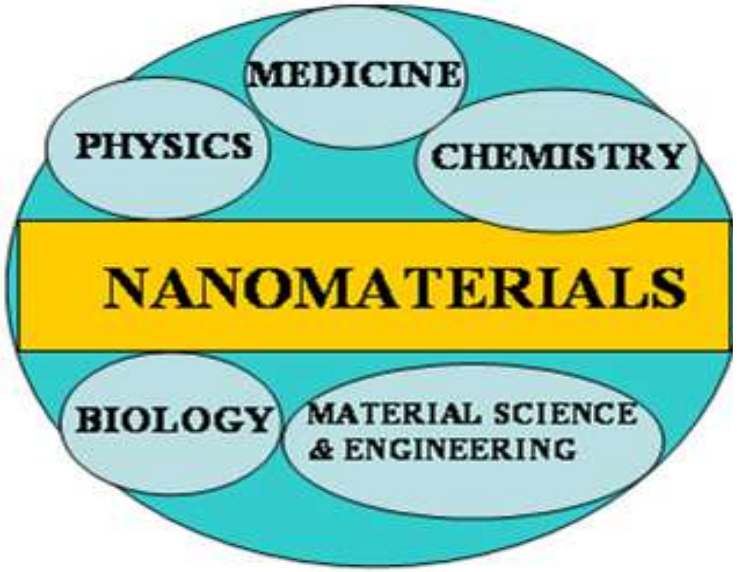
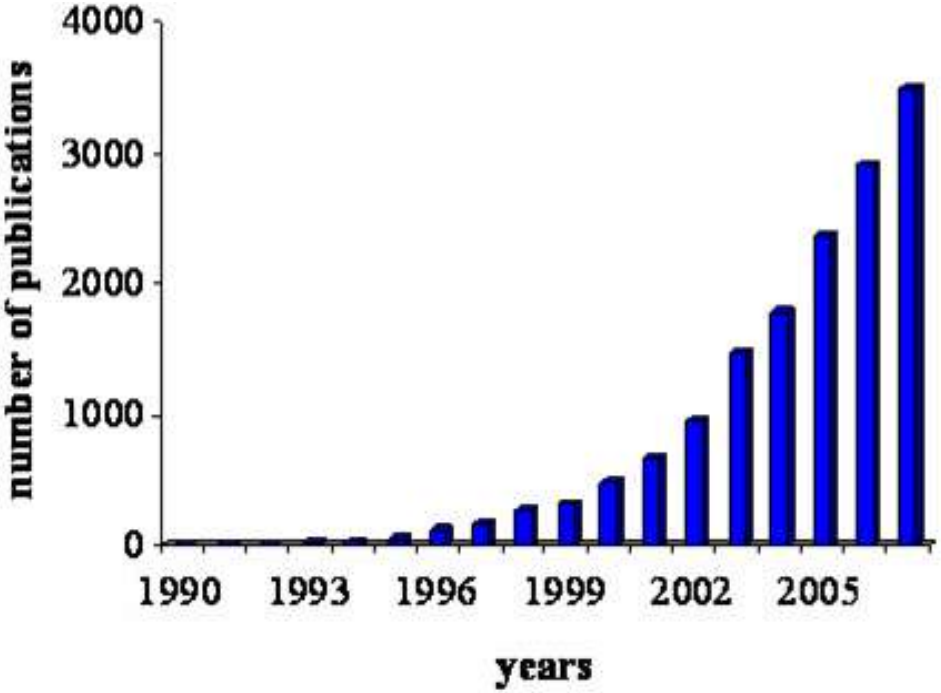
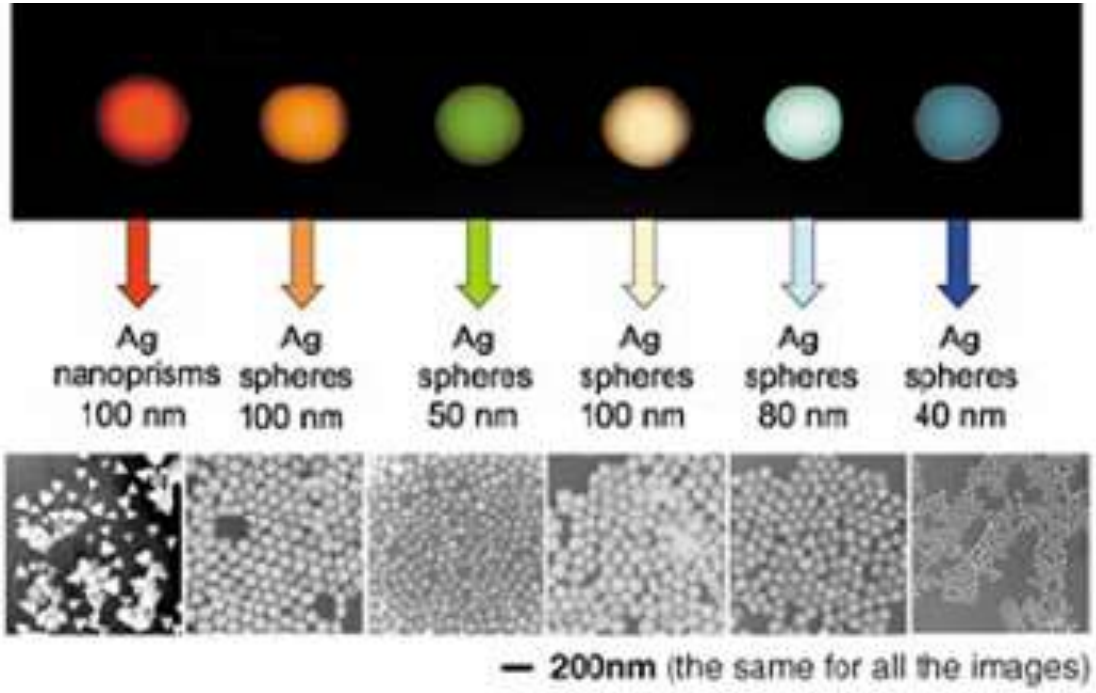
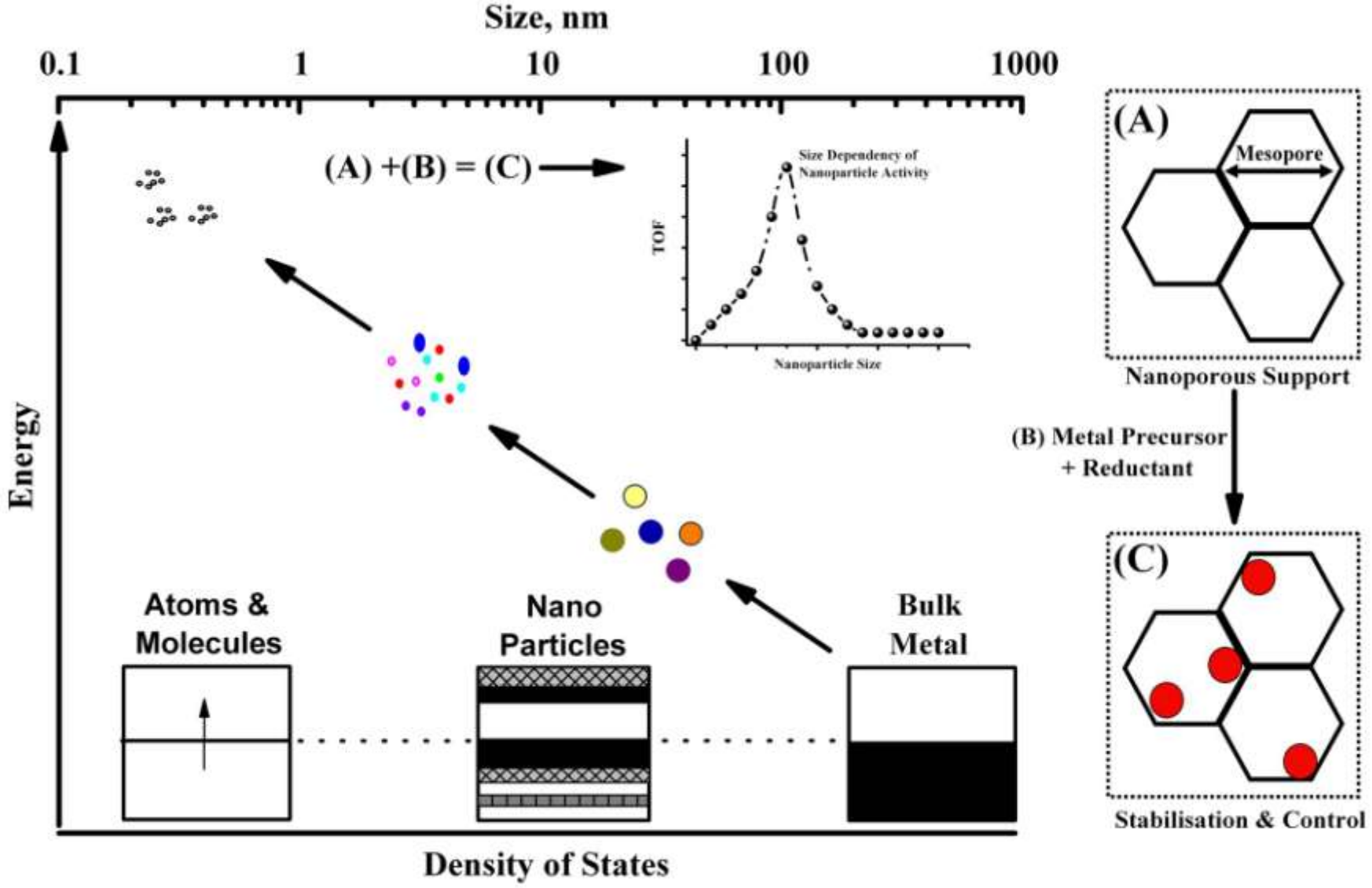

MEDICINE
PHYSICS
CHEMISTRY
NANOMATERIALS
BIOLOGY
MATERIAL SCIENCE
& ENGINEERING


number of publications
4000
3000
2000
1000
0
1990
1993
1996
1999
2002
2005
years


Ag nanoprisms 100 nm
Ag spheres 100 nm
Ag spheres 50 nm
Ag spheres 100 nm
Ag spheres 80 nm
Ag spheres 40 nm
— 200nm (the same for all the images)

SUPPORTED METAL NANOPARTICLES



R. Luque et al. **Chem. Soc. Rev**. 2009, DOI:10.1039/B802654H

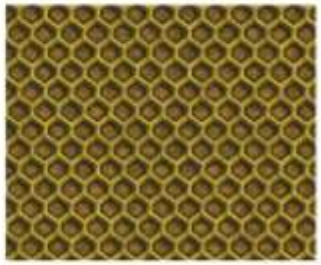
R. Luque, **Progress in Heterogeneous Catalysis**, Ed. Dieter Marmaduke, 2008.

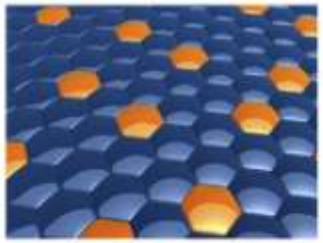
J.M. Campelo et al. **ChemSusChem** 2009, DOI:

Metal precursor

Efficiency of metal delivery

Porous materials





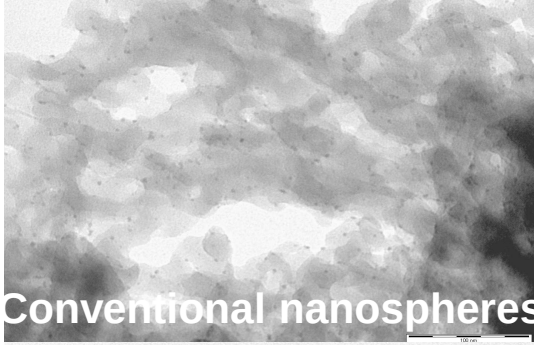
Supported Metal Nanoparticles

Catalysis

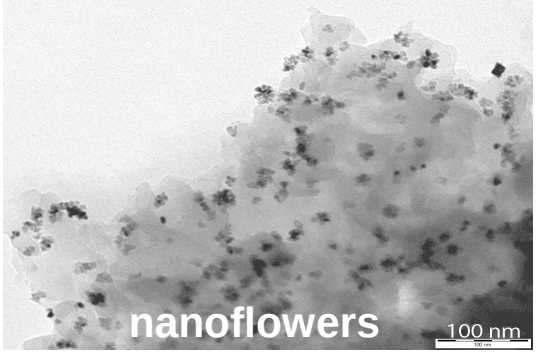
Fuel cells

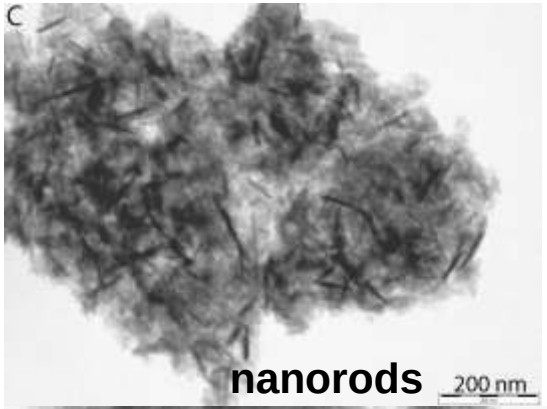
Medicine

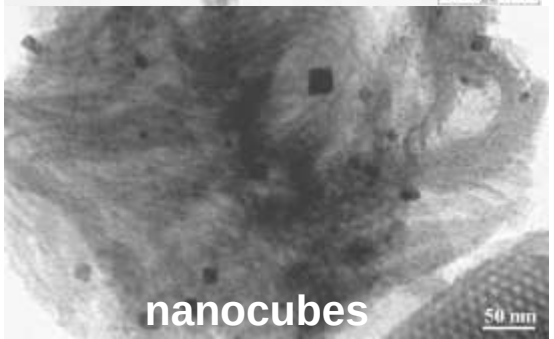
Sensors

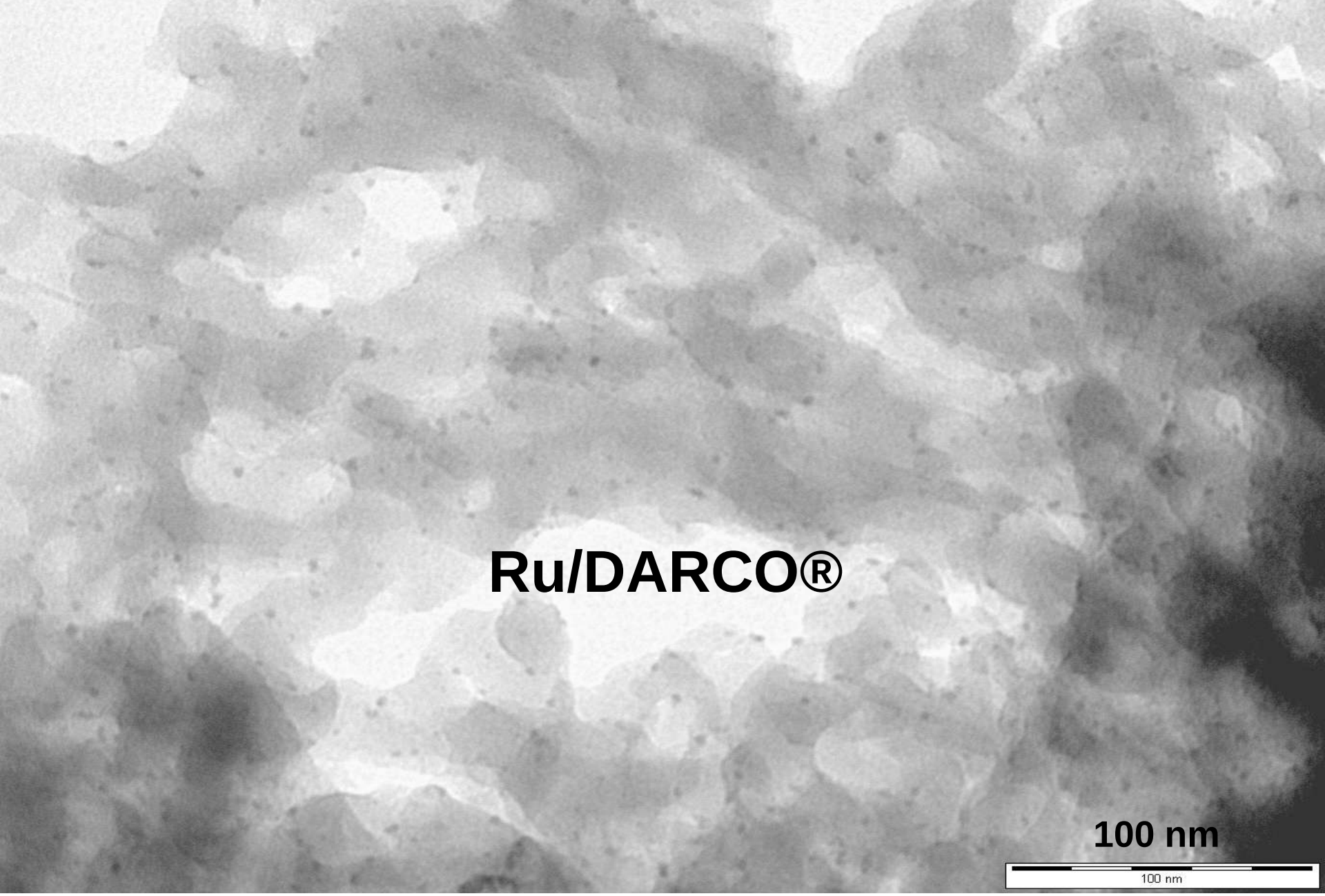


Conventional nanospheres



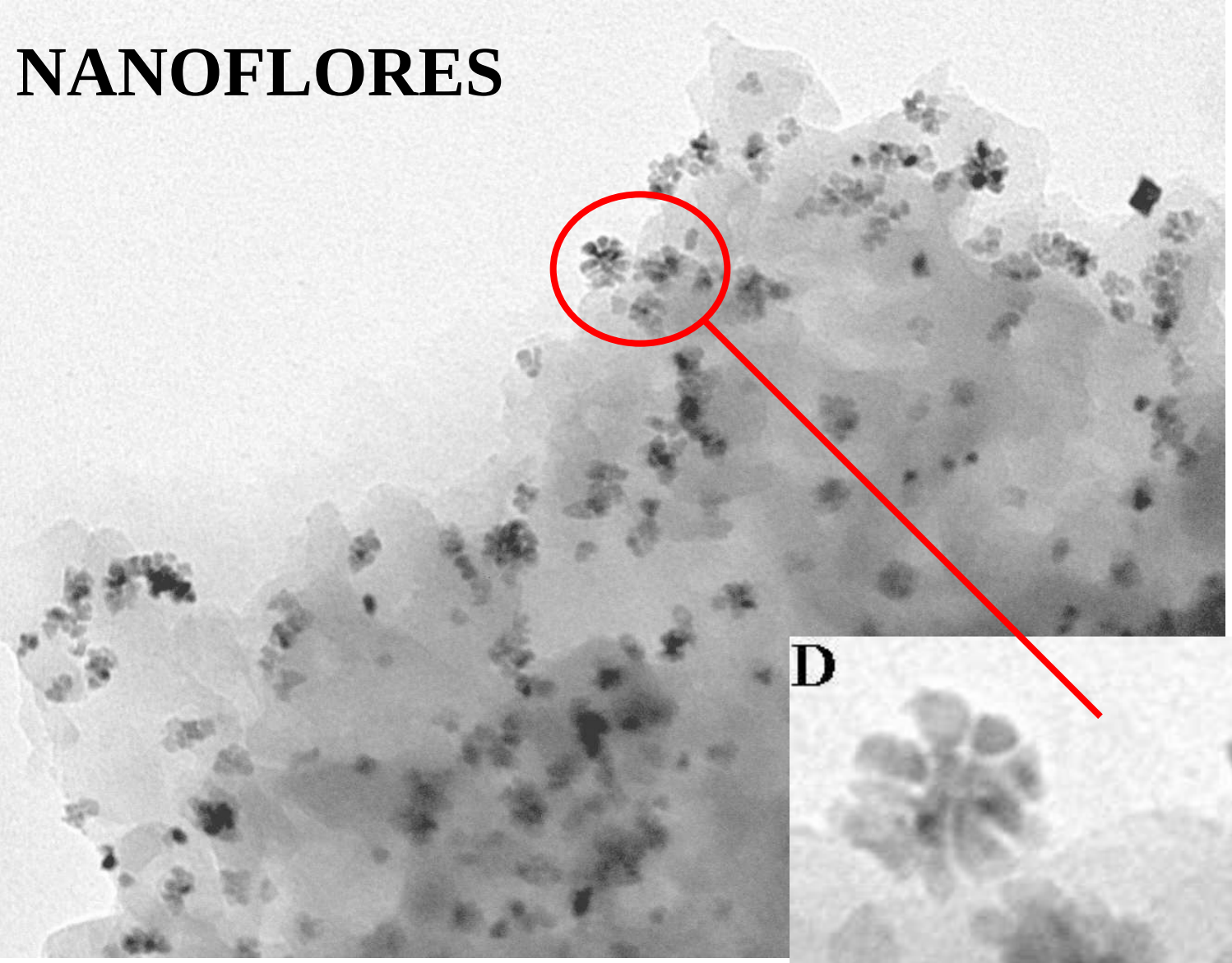




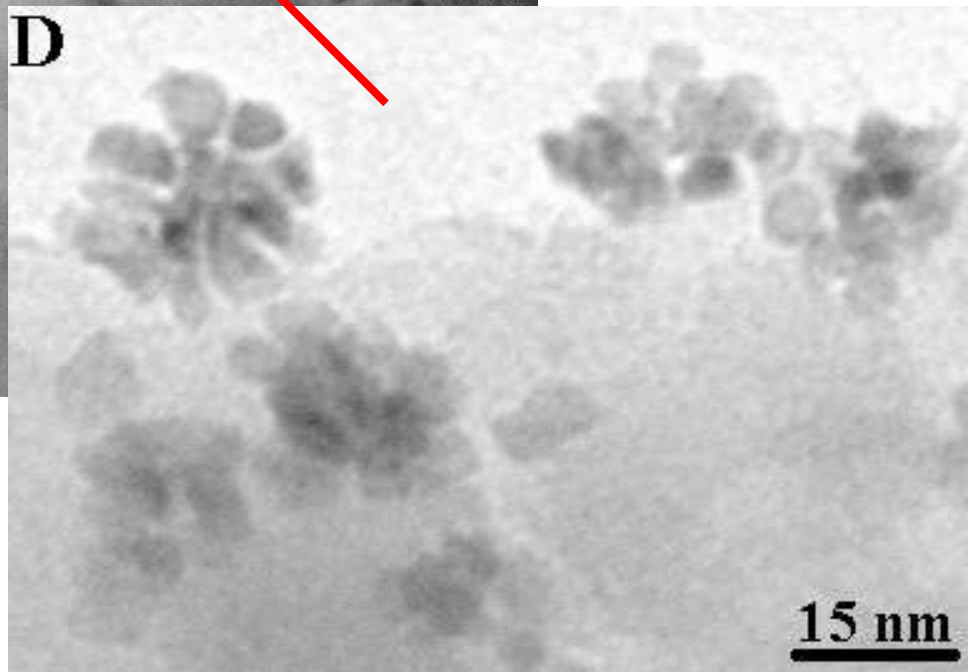


Impregnación/reducción (método similar al publicado en R. Luque et al. *Catal. Lett.* 2008, **124**, 204-214)

NANOFLORES



Rh/Zr-HMS

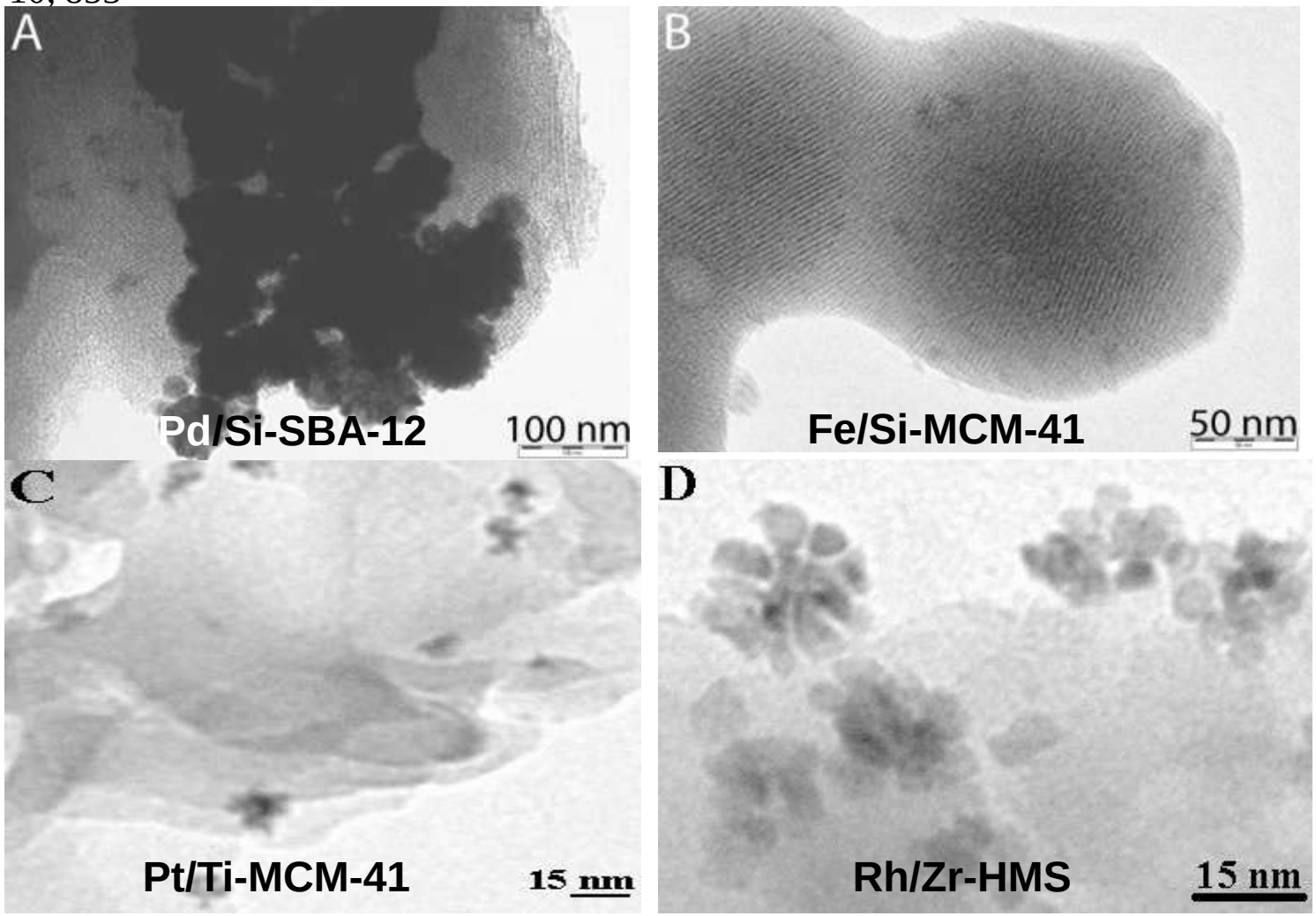


HETERÓÁTOMOS (e.g. Ti, Zr) + MICROONDAS

NANOFLORES vs FORMACIÓN DE CLUSTERS CONVENCIONALES

J.M. Campelo et al. **Green Chem.** 2008, 10, 853

C. Gonzalez-Arellano et al. **ChemSusChem** 2008, 1, 746



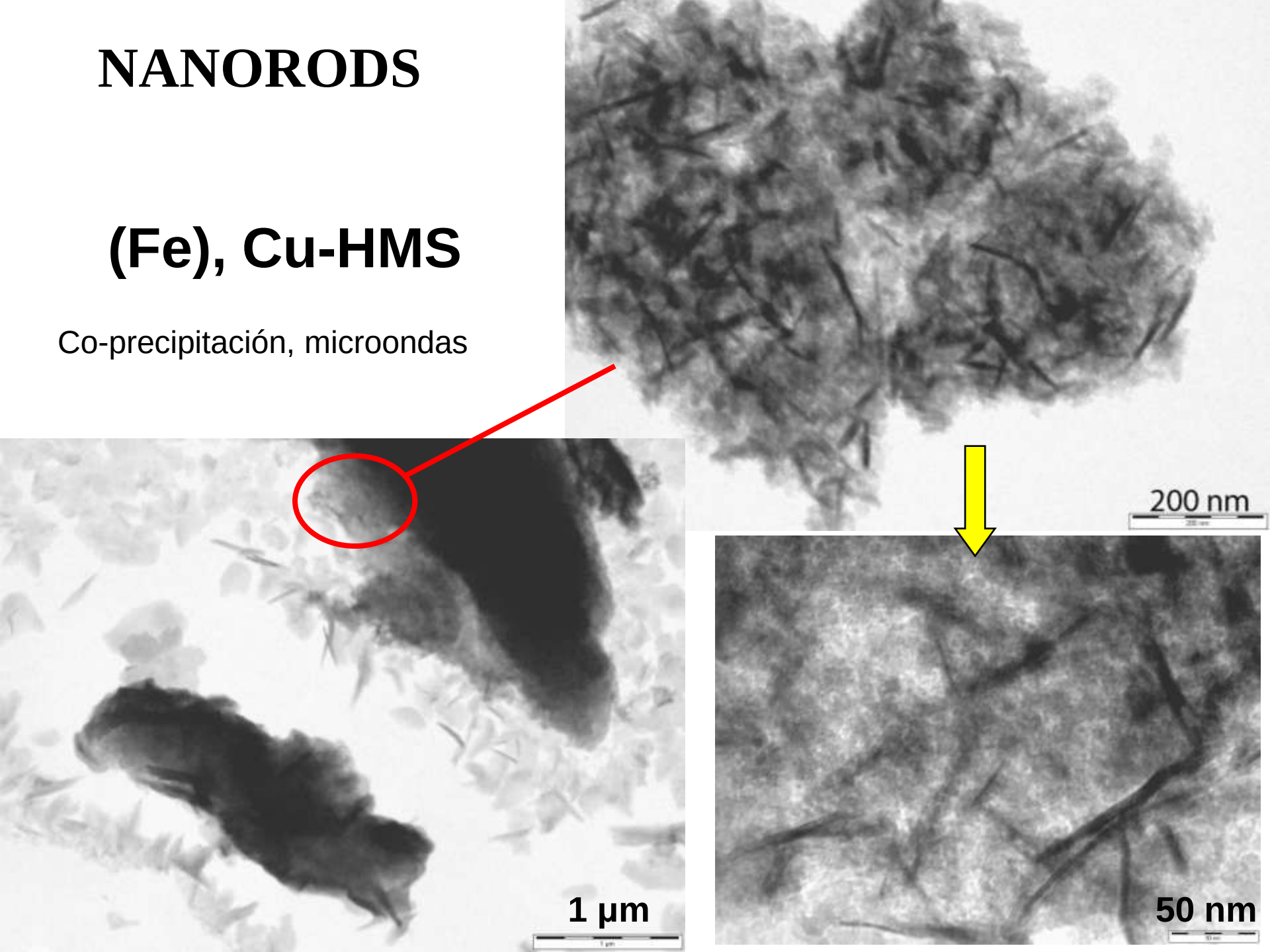
R. Luque et al. **Chem. Eur. J.** 2009, accepted

HETERÓÁTOMOS (e.g. Ti, Zr) + MICROONDAS vs SI MATER + MICROONDAS

NANORODS

(Fe), Cu-HMS

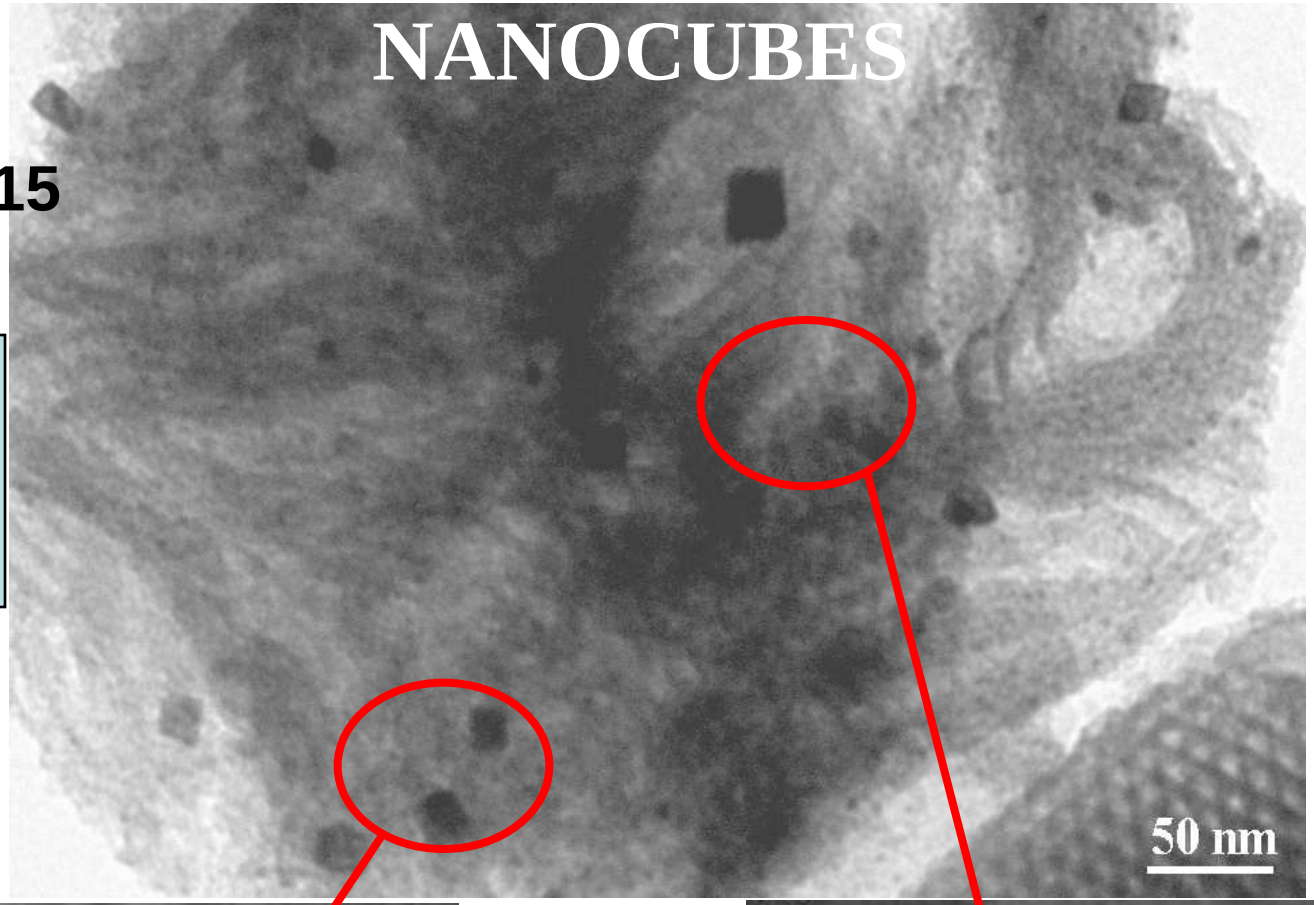
Co-precipitación, microondas

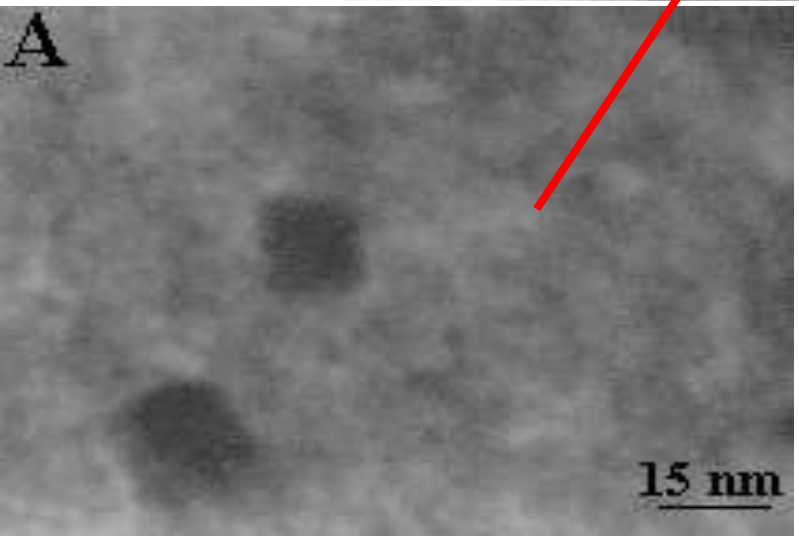


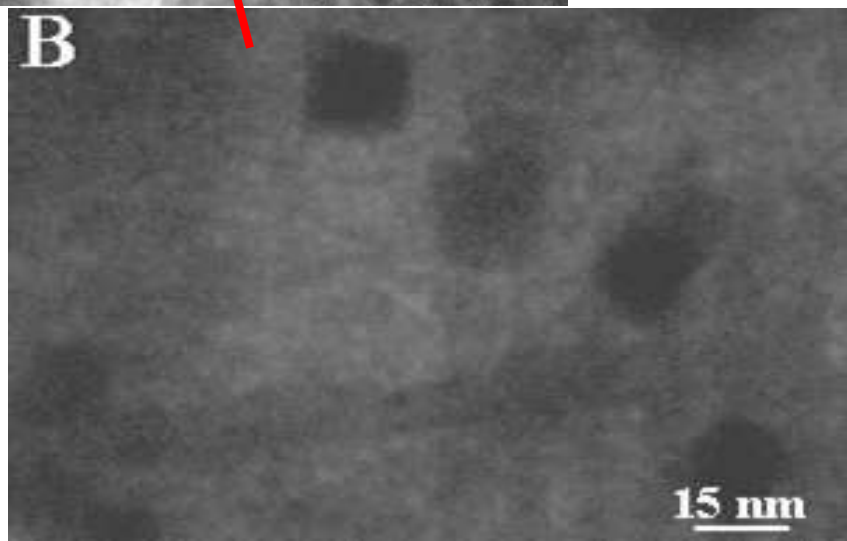
Pt/Al-SBA-15

Impregnación post-síntesis

ultrasonidos







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THE UNIVERSITY of York

Green Chemistry
Centre of Excellence

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