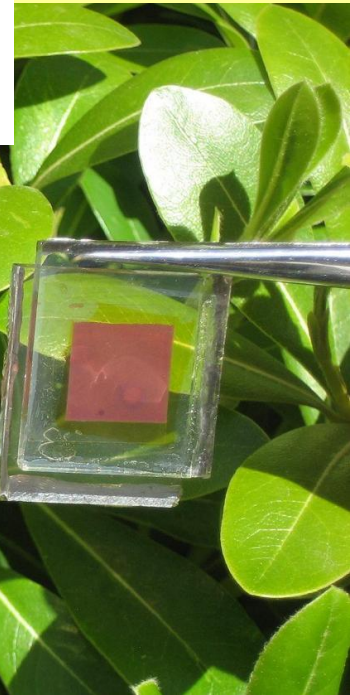
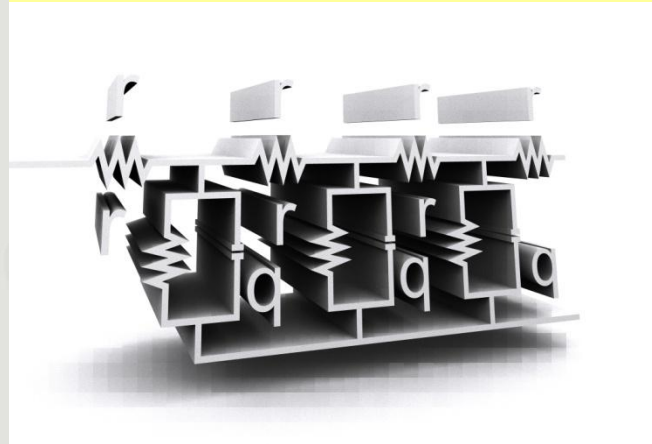
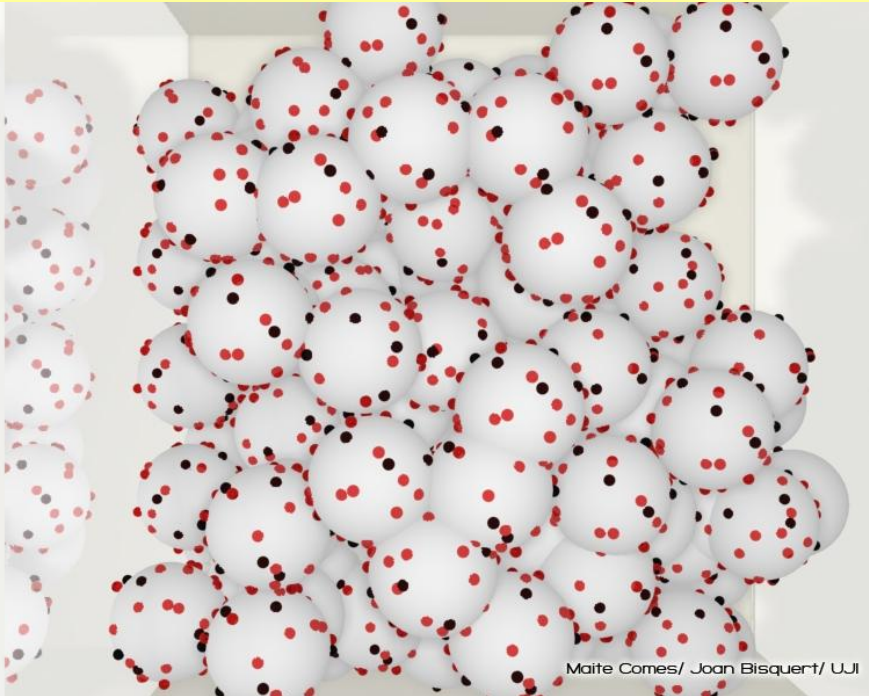


# Photovoltaic and Optoelectronic Devices Group

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# Photovoltaic and Optoelectronic Devices Group

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	Lcdo. José Maria Montero
	Lcda. Fabiola Iacono
	Lcdo. Pablo Pérez Boix
	Lda. Lledó Prades
Visitors (>3 months)	Lcdo. Lorena Macor (Argentina)
	Lcdo. Márcio Gomes (Brasil)
	Dr. Xueqing Xu (China)



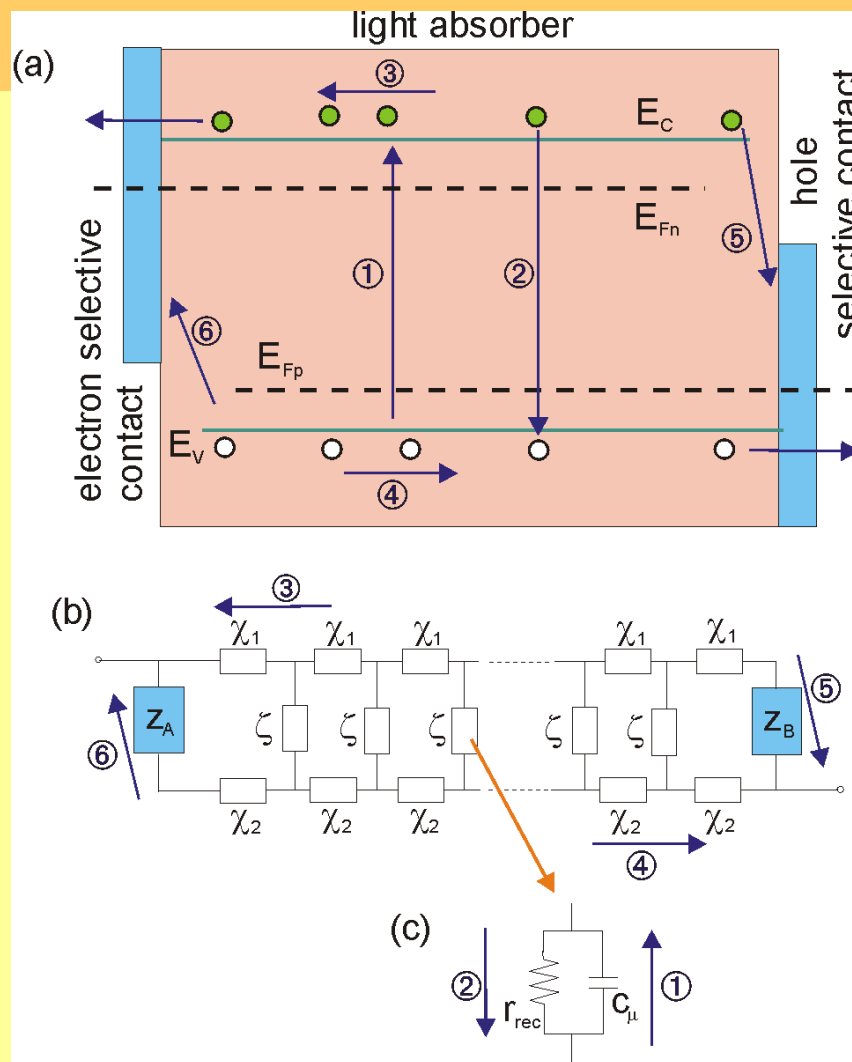
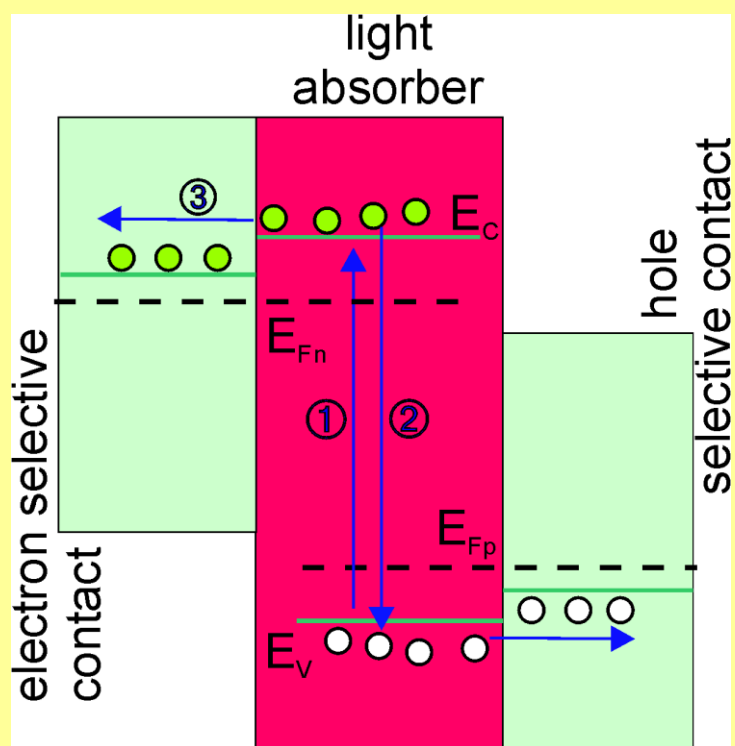


# Photovoltaic and Optoelectronic Devices Group





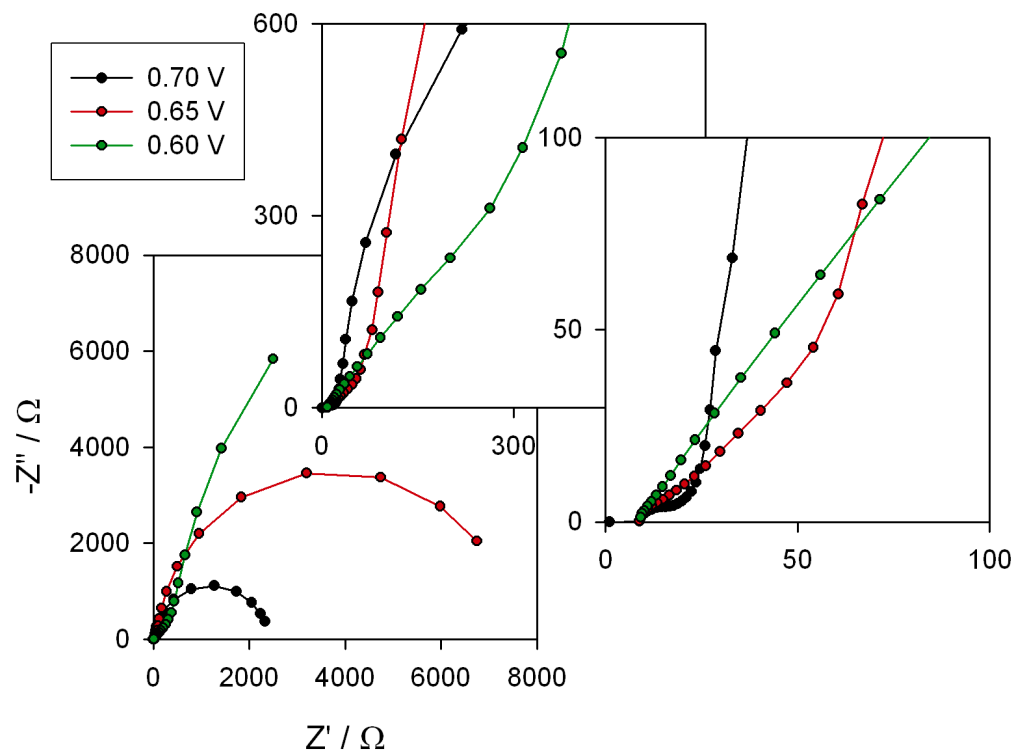
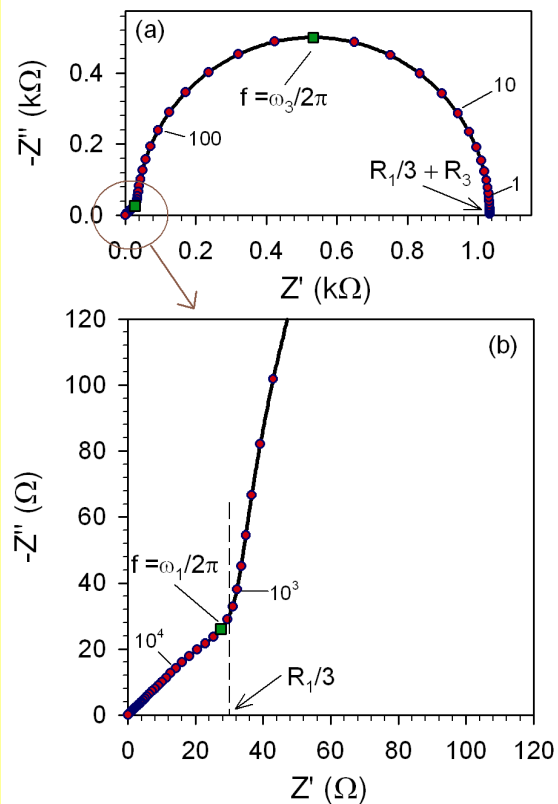
# Research topics



J. Bisquert, D. Cahen, G. Hodes, S. Rühle, A. Zaban  
*Journal of Physical Chemistry B*, 108, 8106-8118 (2004)



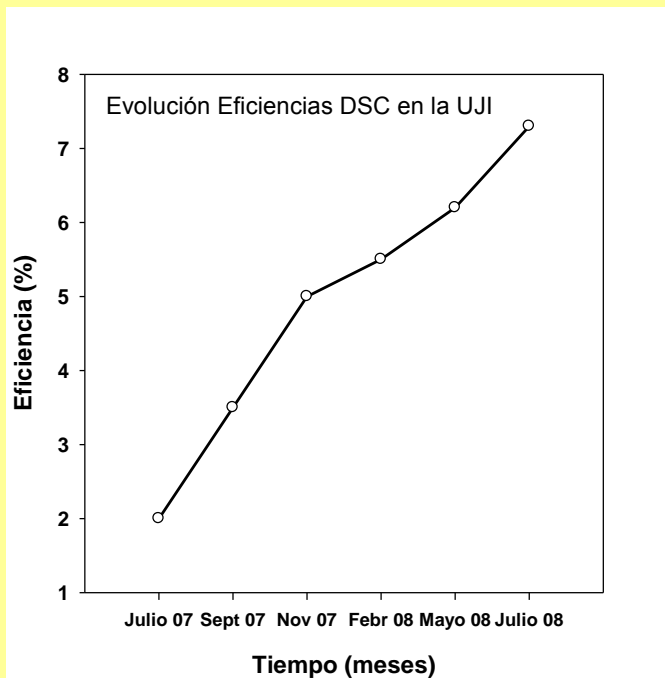
# Transport in solar cells-diffusion model



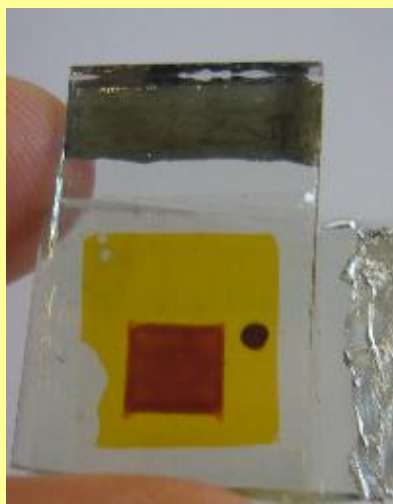
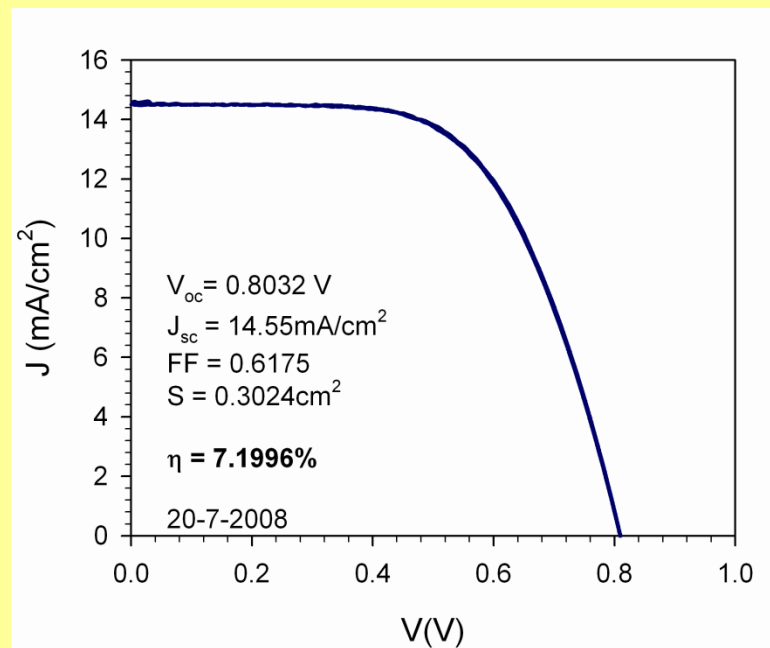
Q. Wang, Michael Grätzel, Francisco Fabregat-Santiago, Juan Bisquert et al., J. Phys. Chem. B. **110**, 25210-25221 (2006)



# DSC preparation

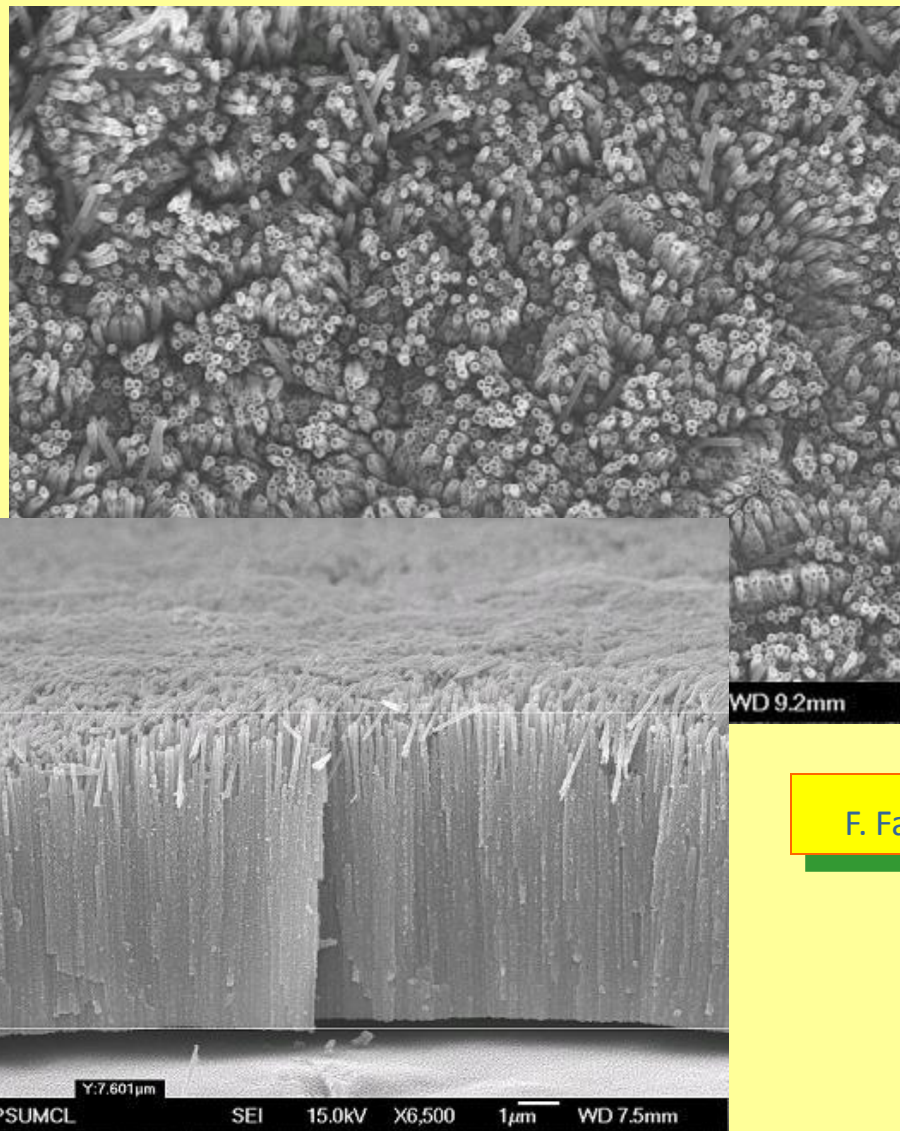


**DSC record laboratorio UJI:**  
**7.2% eficiencia referencia con N719**  
**Área 0.3 cm<sup>2</sup>**





# Nanotube dye solar cell

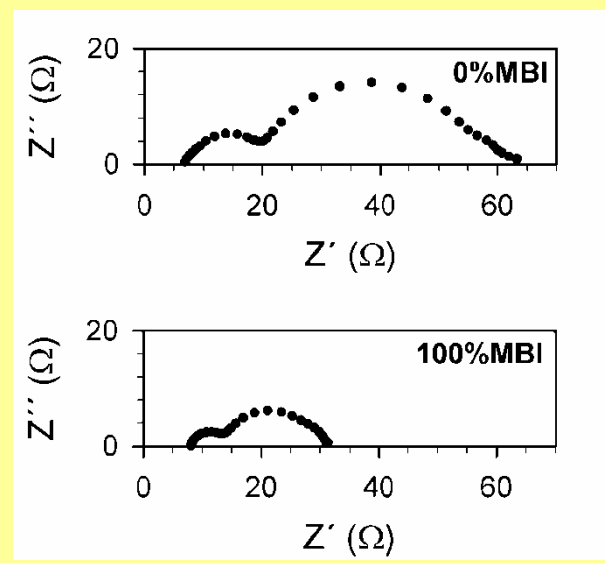
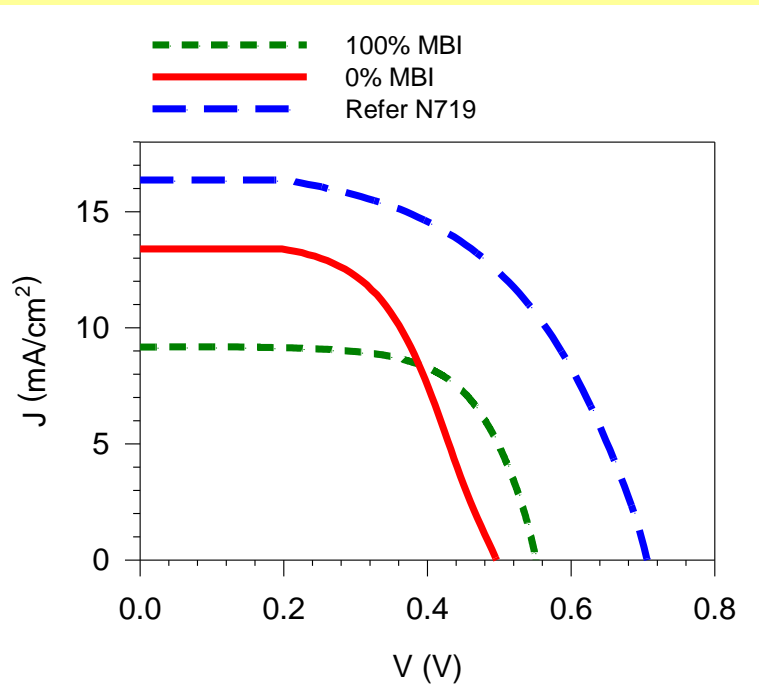
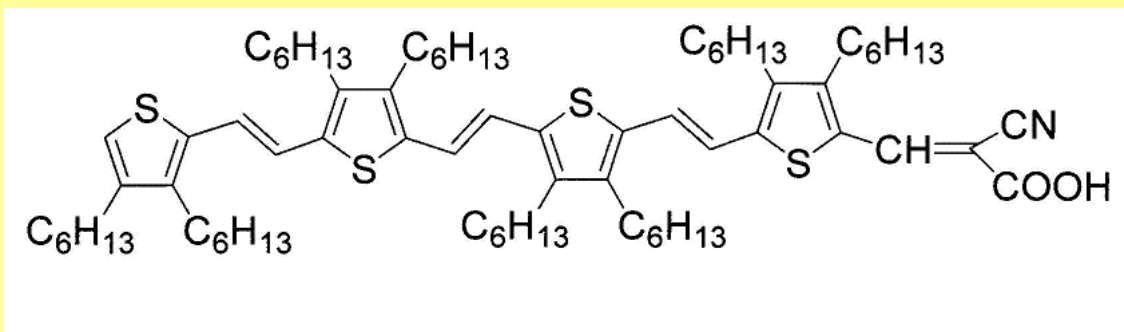


F. Fabregat, J. Bisquert, C. Grimes et al., *JACS* **130**, 11312 (2008)





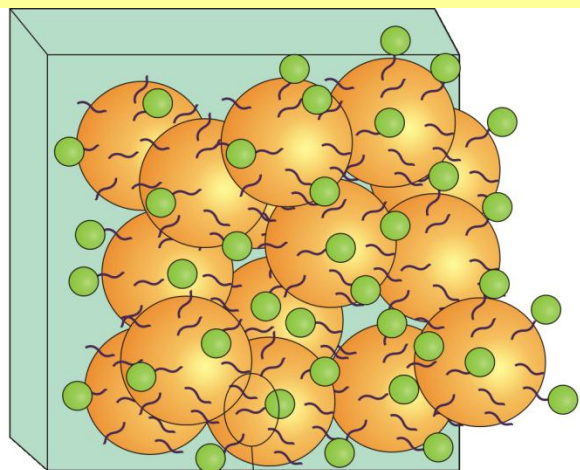
# DSC organic dyes



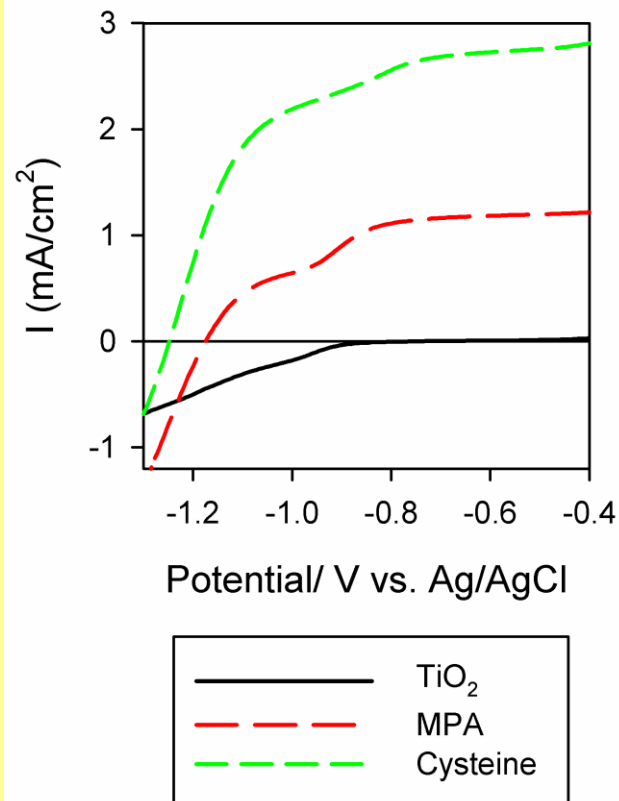
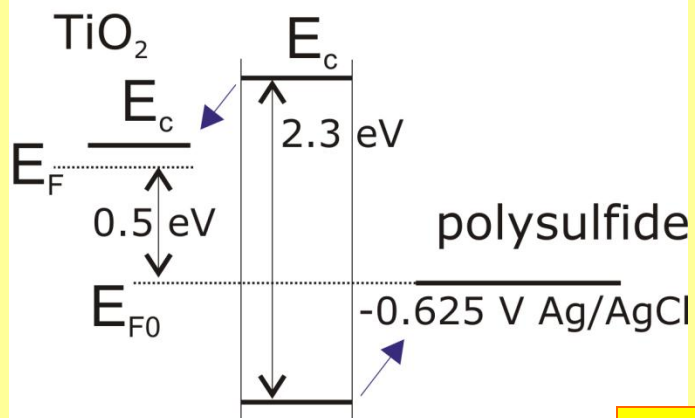
R. Caballero , E. Barea , F. Fabregat-Santiago , P. de la Cruz , L. Marquez , F. Langa , J. Bisquert *JPCC* **112**, (2008)



# CdSe quantum dot sensitized solar cell UJI-UA



CdSe

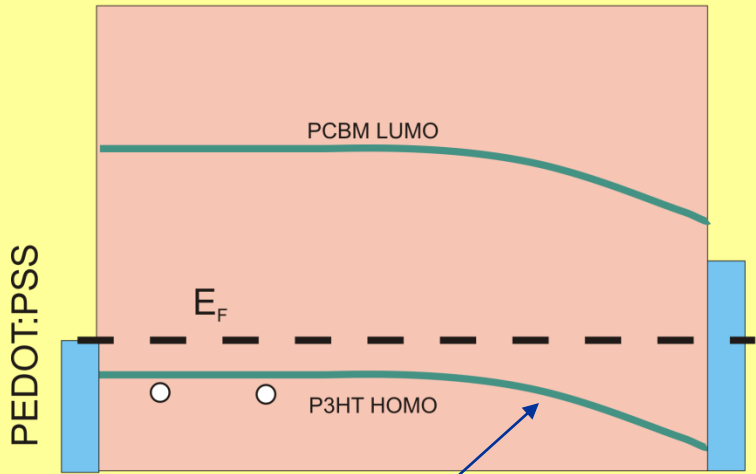


I. Mora-Seró, S. Giménez, T. Moehl, F. Fabregat-Santiago, T. Lana-Villareal, R. Gómez and J. Bisquert *Nanotechnology* (2008)



# Characteristics of P3HT:PCBM solar cell

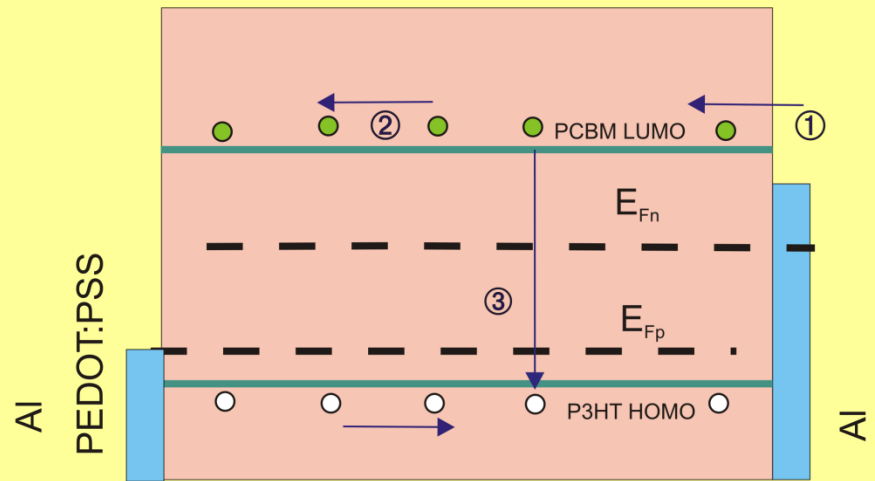
$V = 0$



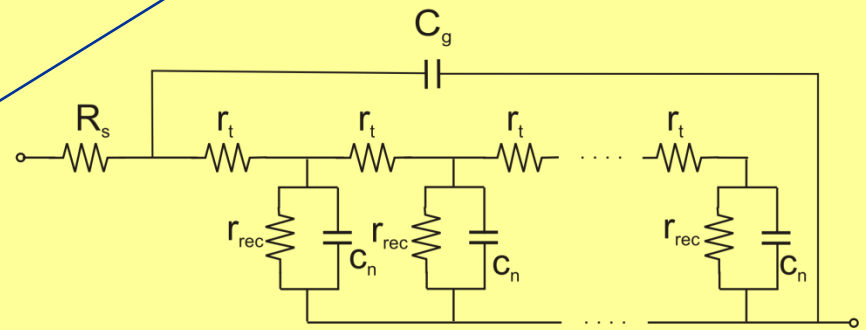
Schottky barrier

forward bias

$V > V_{bi}$



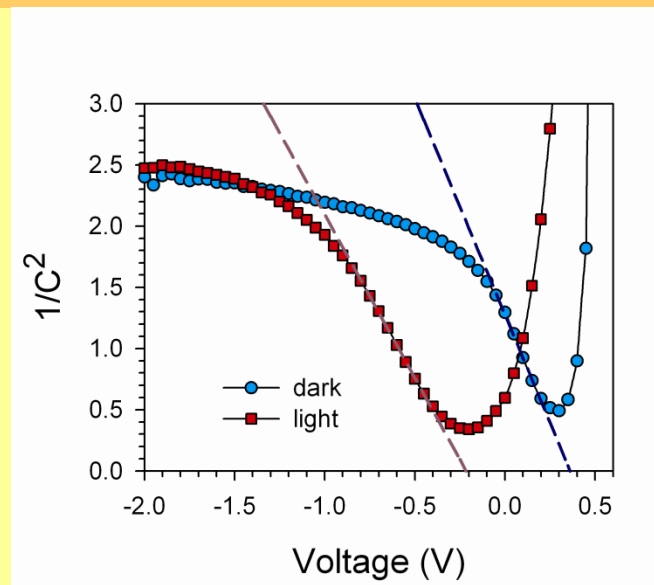
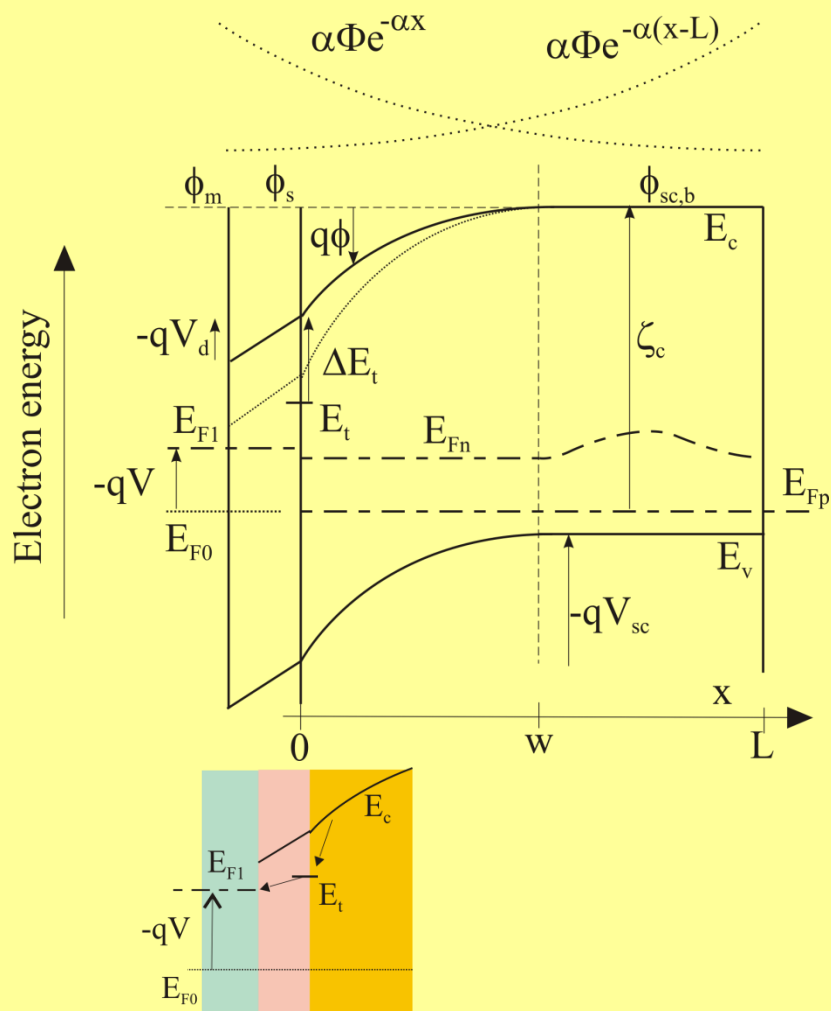
Diffusion-recombination of electrons (minority carrier)



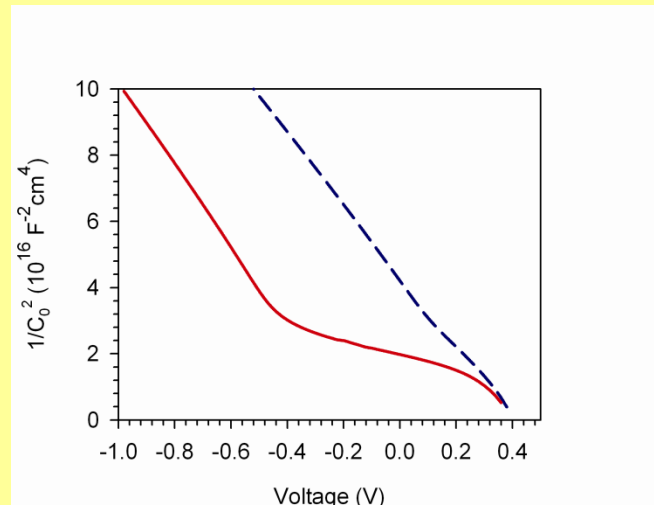
G. Garcia-Belmonte, A. Munar, E. M. Barea, J. Bisquert, I. Ugarte, R. Pacios *Organic Electronics* **9**, 847-851 (2008)



# Characteristics of P3HT:PCBM solar cell



**dark**  
**light**



J. Bisquert, G. Garcia-Belmonte, A. Munar, A. Soriano, M. Sessolo, H. J. Bolink, Chem. Phys. Lett. In press