Electronic Supplementary Information

Mesoporous materials and electrochemistry

Alain Walcarius

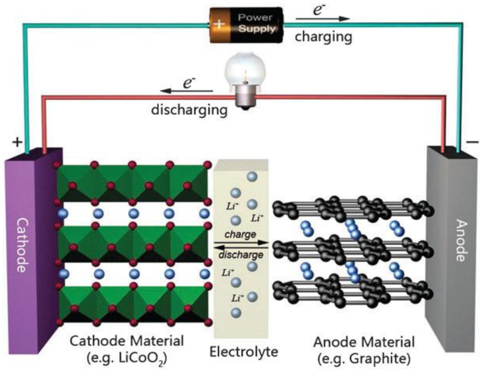


Fig. ESI-1 Typical commercial Li-ion battery showcasing the charge/discharge intercalation mechanism. *Reprinted from* R. Liu, J. Duay and S.B. Lee, *Chem. Commun.*, 2011, **47**, 1384, *Copyright (2011) Royal Society of Chemistry.*

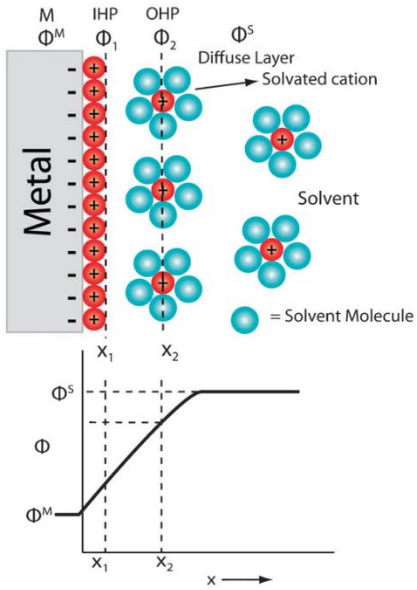
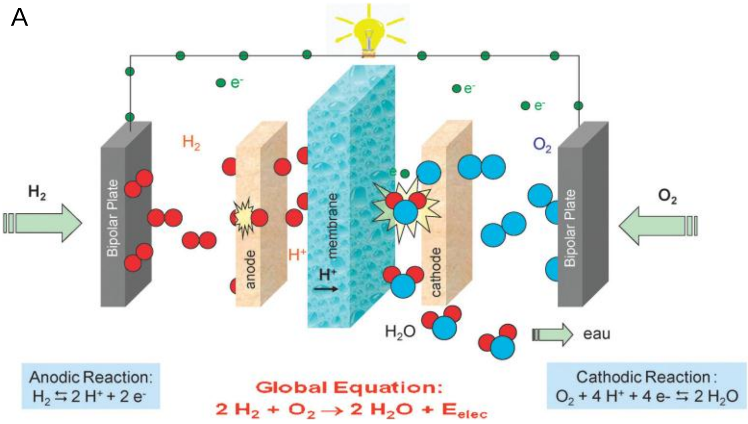


Fig. ESI-2 Illustration showing the double layer formation of a typical electrochemical double layer capacitor electrode with IHP and OHP standing for the inner Helmholtz plane and outer Helmholtz plane, respectively. The graph represents the potential gradient across the double layer with Φ^S and Φ^M corresponding to the potential of the electrolyte solution and the potential of the electrode metal, respectively. *Reprinted from* R. Liu, J. Duay and S.B. Lee, *Chem. Commun.*, 2011, **47**, 1384, *Copyright (2011) Royal Society of Chemistry.*



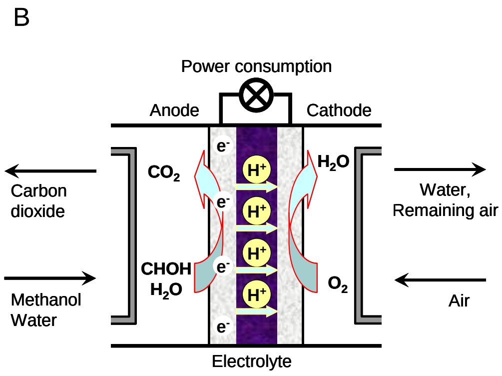


Fig. ESI-3 (A) General illustration of a proton exchange membrane fuel cell. *Reprinted from* C. Laberty-Robert, K. Vallé, F. Pereira and C. Sanchez, *Chem. Soc. Rev.*, 2011, **40**, 961, *Copyright (2011) Royal Society of Chemistry*. (B) Particular case of a direct methanol fuel cell.

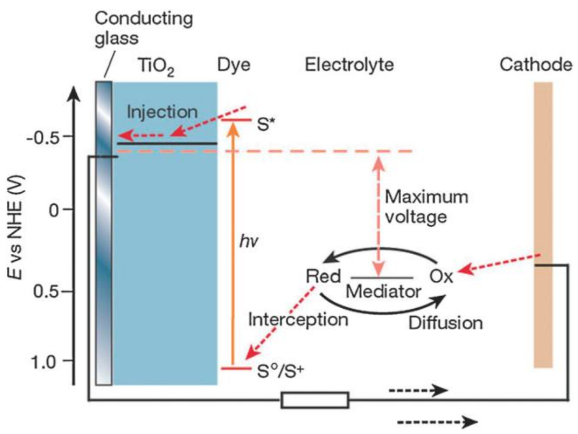


Fig. ESI-4 Schematic illustration for the operation of the dye-sensitized solar cells (DSSC). The photoanode, made of a mesoporous dyesensitized semiconductor, receives electrons from the photo-excited dye which is thereby oxidized, and which in turn oxidizes the mediator, a redox species dissolved in the electrolyte. The mediator is regenerated by reduction at the cathode by the electrons circulated through the external circuit. *Reproduced from M. Grätzel, Nature, 2001, 414, 338, Copyright (2001) Nature Publishing Group*

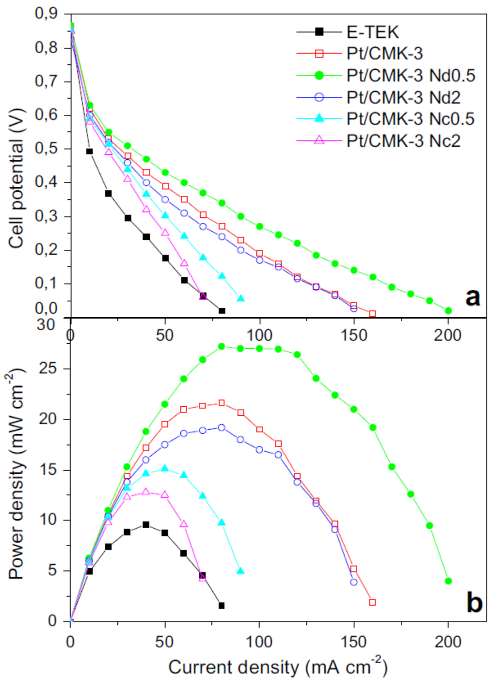


Fig. ESI-5 Polarization (a) and power density (b) curves of Pt electrocatalysts supported on CMK-3 carbons with different surface chemistry at the anode side in a PEM fuel cell working at room temperature and atmospheric pressure. *Reproduced from Ref. 560, Copyright (2011) Elsevier.*