

ABSTRACT

A hybrid composite nanomaterial comprising a hydrotalcite like layered double hydroxide compound provided with one or more lanthanide elements inserted into the 2D layers and one or more organic-inorganic (DONOR/ACCEPTOR) compounds, or acids or salts thereof, intercalated between them as shown in figure 1. The innovative co-axial design for encapsulating the active layer(s) of a hybrid organic-inorganic solar cell, along with the nanocomposite, for light energy conversion, not only provides the active material more convertible energy, but also the opportunity to incorporate insitu or envisage a standalone pair of a Photoelectrochemical (PEC) and Fuel cell (FC). The hydrotalcite like nanomaterials, are projected to be dispersed inside the co-axial PEC/FC, whereby they can also convert the excess hydrogen electricity as shown in figure 32 (a) and (b). The potential to use the co-axial, hybrid (PEC/FC) as standalone driven by any other power source, is also envisaged upon.

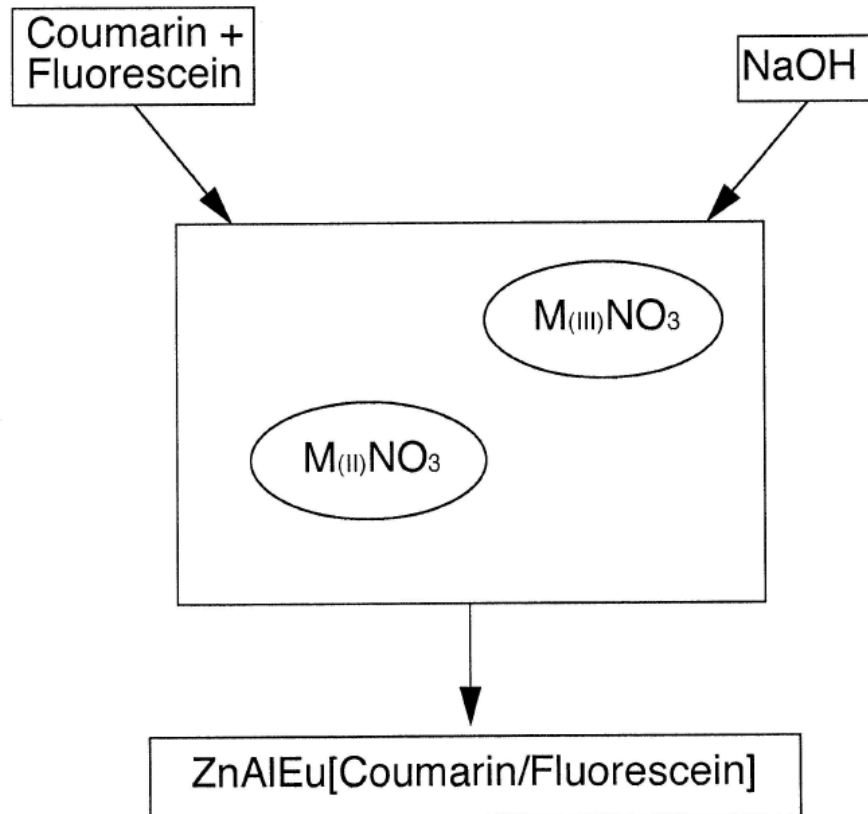


Figure 1

Figure 32(a)

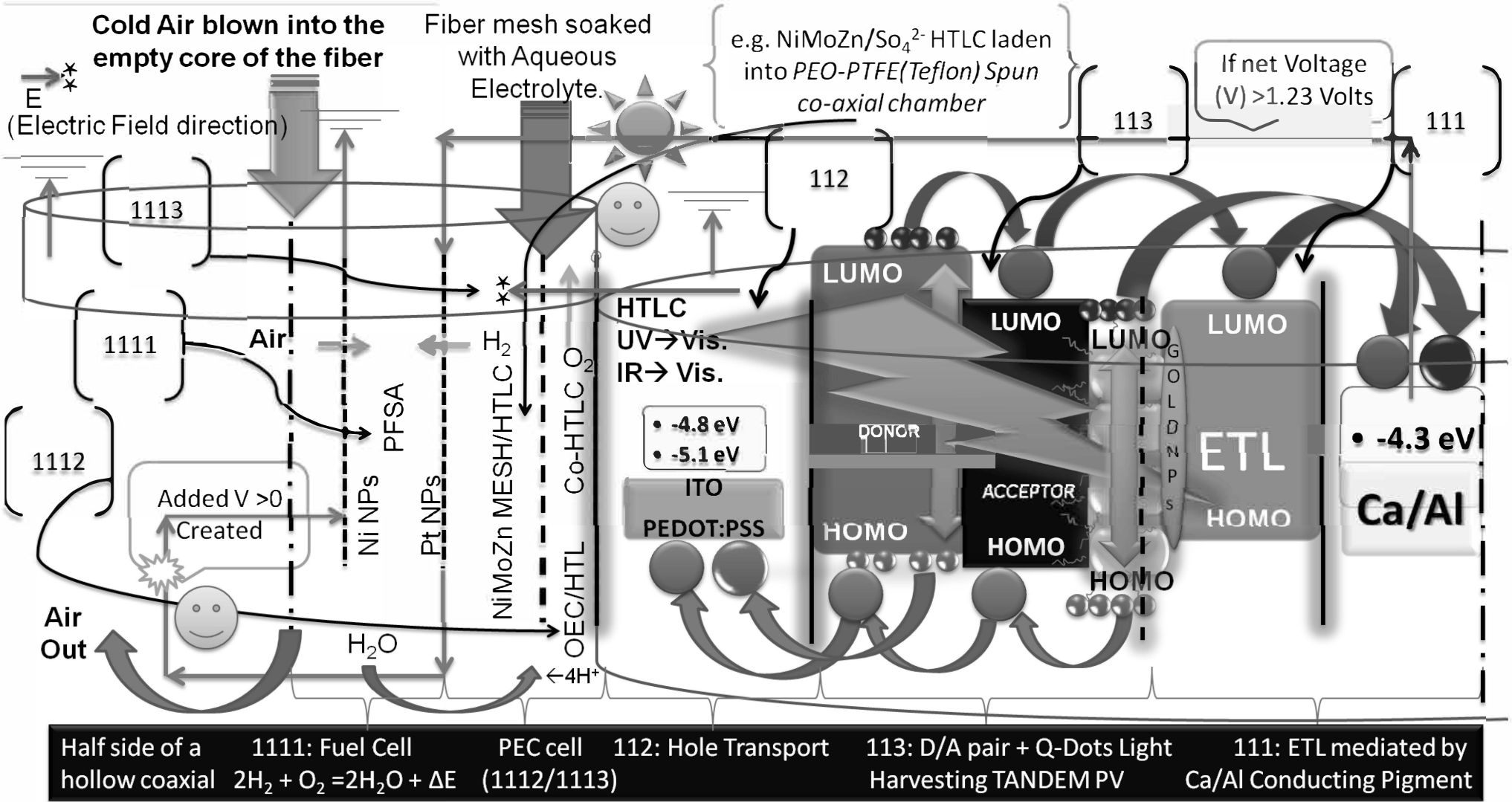


Figure 32(b)

