Oxhydroelectric Effect

In PROMETE we found a new experimental phenomenon that we called “Oxhydroelectric Effect”, which confirms that the QED (Quantum Electrodynamics) application to the study of water can lead to identify entirely new experimental facts, with possible applications of technical and industrial interest, based on very simple technologies.

The Oxhydroelectric Effect consists in the extraction of an electric current from bi-distilled water, using two identical platinum electrodes, where the current is fed from the simple environmental heat, and mediated by oxygen molecules. This is something that any normal middle school student knows that is completely impossible! Since, however, the effect is there, it is clear that it could represent the scientific basis for a possible technological breakthrough to new systems of electricity generation, environmentally friendly, non-centralized, and low-cost; to new catalytic systems for use in the chemical industry; to fuel cells of much greater efficiency, etc...

- R. Germano et al., Oxhydroelectric Effect: Electricity from Water by Twin Electrodes, Key Engineering Materials, 495, 100-103 (2012)

Recently we obtained the following advancements:

- A NEW home made, and cheap, STRONGLY HYDROPHILIC POLYMER (substituting NAFION®)
- Electric current extraction lasting for months (only “mechanical” polymer limits)
  NO MORE DECAYING
- Cheap Electrodes (NO MORE PLATINUM)
- NO more Micrometer Filter is necessary
- Working also without H₂O₂ - but very sensitive (fast answer) to LIGHT (especially infrared)
POTENTIAL PRODUCTS. It’s clear that the object of the patent on the OXHYDROELECTRIC EFFECT in double-distilled water, PROCESS AND APPARATUS FOR THE EXTRACTION OF ELECTRICITY FROM WATER, can be transformed to a real "breakthrough" technology. The phenomenon needs of course further research to go beyond the "proof of principle", and then the technological challenge will mainly consist in the identification of at least one specific application-system to optimize and to engineer, and soon after in the scale-up of such a system. We mention only a few of these specific applications easily conceivable already now:

- **New Photovoltaic Systems working thanks to infrared radiation (environmental heat)**
- **Higher efficiency Fuel Cells**
- **Optimization of Reactions in Industrial Chemistry**
- **Higher efficiency Reverse Electro Dialysis (RED) systems**

We believe, however, that the priority is to focus on the first point:

**New Photovoltaic Systems working thanks to infrared radiation (environmental heat).** In fact, the steps to verify the technological applicability of Oxhydroelectric Effect for this specific and breakthrough application are essential also for the other potential applications mentioned above. Moreover, the hypothesis to pursue all these goals at the same time, seemed to us too much ambitious, because there is unavoidably need of much man-time of the only few researchers in the world already experts on these issues.

**New "PV" Systems working thanks to infrared radiation (environmental heat).** The phenomenon of Oxhydroelectric Effect in bi-distilled water, i.e. without the presence of electrolytes in significant amounts, opens the way - without any doubt - to a new class of phenomena and possible energy applications. In the experiments conducted up to now, with 2 electrodes of platinum and at room temperature, an electrical power of the order of 0.2 microwatt is extracted, for many hours by bi-distilled water. So, although it is a totally new phenomenon, it should be noted that electric powers not negligible are obtained immediately, i.e. that do not represent only a pure "scientific curiosity", but that would already be able to feed, for example, a RAM of new generation - cf.: Ujwala A. Belorkar, S. A. Ladhake "Layout Design of Static RAM Memory using 45
nm VLSI Technology", Proc. of the Intl. Conf. on Computer Applications - Telecommunications, Ed K. Hari Krishna, Research Publishing (2011). This obviously leaves hope in the possibility to go beyond the "proof of concept" on the possibility of using this effect in practice as a new type of "solar cells" operating in the infrared, i.e. even in those conditions that our eyes are considering "dark", and that on the contrary - under normal environmental conditions - is always rich of infrared radiation. Needless to say, this may be a true technological revolution.