Limelight Energy (Application of Nanoparticles to the Optic Energy Cell)

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In the last decades it became obvious that unique solar power is the most constant, effective and friendly source of energy. However, despite swift breakthrough in this field, the highest efficiency is 44,7%. Thus, the purpose of the study was to design a new technology that would be able to increase efficiency of any optic element and admit wider spectrum of the light even at low intensities. The bulk Si-n layer in a photovoltaic element was replaced by 8 layers of Si-n nanoparticles; internanoclusteral space of the first composed layer was 200 nm, decreasing level by level up to 20-25 nm for the last. Then, the system was placed in a weak electric field, which affected nanoparticles. Output voltage and current at certain light wavelengths were measured. The standard photovoltaic element with Si-n functional layer (5x10 cm) placed under white natural light produces 900 mA per hour at 5V. Proposed cell containing Si-n nanoparticles, was able to produce 1100 mA per hour at the same conditions. This happened because of mesomeric effects occurring in the cell, such as modulative side of Franz-Keldysh effect, Stark effect, partial Debye’s effect. Additionally, it was discovered that in the STABILE electrical field nanoparticles start to FLUCTUATE the current and form alternating current. Moreover, the cell can even function in infrared part of spectrum (900nm), likely, due to Rayleigh scattering between conic nanoclusters. Proposed technology can significantly improve efficiency (by 20%) of modern optic/solar energy elements and can be applied for development of constantly recharging devices that will able to charge even in a very weak light, such as moonlight or artificial light. Such technology is considerably cheaper than those of the same efficiency and totally ecosafe