

SUMMARY OF INVENTION

1Sun SRL, is aimed at the successful transfer of extensive R&D efforts in identifying innovative Renewable Energy sources, to their large scale industrial production. **Founded by Dr. Sumeet Kumar**, Engineer and PhD, 1SUN aspires to partner with top Research institutes and industries particularly in **Italy, India** and various other **Solar prominent regions of the World**.

The pure nanomaterials (production cost of c.a. 1.08 euro/gm) are also available for independent selling OR to be inserted at the EVA (existing PV encapsulate) level, while the recipe can be given under Licensing, under the name **Hybrid Nano Materials (hNMs)**;

The hNMs incorporated into UV transparent PLEXI renders a product coined by us as: **Wavelength Conversion Film (WCF)** which comprises of a commercially available UV transparent polymeric matrix, encapsulating inside the UV to Vis. conversion Hybrid Nanomaterials (hNMs).

These hNMs, are proven to sustain a temperature of **350° C**, under pure oxygen environment, and are found to have a constant sharp (with a **small FWHM**) **SINGLE Wavelength, RED (614 nm) laser like emission**, on the advent of **excitations from 290-370 nm (UV excitation**)**.

The hNMs are transparent to Visible light, and having the lanthanide element, **europium, in doped quantity**, as the **core Continuous Wave; Single Wavelength-RED emitter**, via. hopping of UV energy through TWO organic molecules (intercalated/Stabilized inside the layered structure of the nanocomposite), having **Energy transfer rates in the order of nanoseconds (ns)**, emits the **PROLONGED** (Due to **Decay lifetime** of the RED/Eu3+ emission of the **order of microseconds**), RED emission with a continuous PUMPING (Inter State Coupling-ISC) to the europium atom, **stabilized via self assembly along with the TWO organic chelates**, into the 2D layer of the Layered Double Hydroxide like hNMs.

Towards RetroFITTING the existing and under performing “incentivized” PV plants, 1SUN is deploying its first production plant at **PILOT scale**, covering a maximum of 5 MWp of PV Modules, intervening at EVA level and installing them as ‘mixed’ Strings, doped with the hNMS/WCF technology, especially at the EVA level interventions, which doesn’t need a TUV Re-Certification of the whole module.

As a part of its Industrialization and hence as an expansion process, 1SUN has now access to the Founders’ **Italian Patent, Granted on 19-06-2015 and lately conferred by Dr. Kumar into 1SUN via Capital raise**, which is being used as ‘entry’ criteria into various markets of interest to 1SUN, having extended the Italian Patent in various parts of the world since 01-09-2015, and lately **GRANTED in: Italy, EU/EPO, Israel, USA, Australia, China, Malaysia and Brazil** while **under prosecution in INDIA**; benefiting with an excellent 100% POSITIVE European Patent Office (EPO).

Dr. Kumar’s **Patent** entitled “**HYBRID COMPOSITE NANOMATERIALS**” is now **published** with the following number: **WO2014132183**