

# Indoor Power Generation by Vaseline Glass Plate Doped with Non-Fermi Liquid behaviour of Electron Metals ( $U_xTh_{1-x}PdSi_2$ , $x \leq 0.07$ )

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## ABSTRACT:

Supplementing day-to-day energy requirement using renewable sources of energy is essential. However, highly fluctuating nature of renewable sources necessitates storage. Storage is expensive and has to be replaced periodically. Hence there is need to integrate available power, which may be indoor or outdoor. In this project an innovative stand alone, indoor energy generation by light system is proposed by doped VGP with non-fermi liquid materials ( $U_xTh_{1-x}PdSi_2$ ,  $x \leq 0.07$ ) with empirical formula. The CFL Radiations are subjected towards Solar PV<sup>6</sup>Plate through the doped VGP to improve the efficiency of Solar PV Panel.

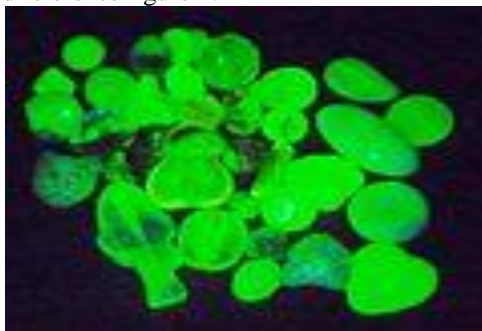
**Keywords:** Vaseline Glass Plate (VGP), Compact Fluorescent Lamp (CFL) Yellow-Green Color Light(Y-G-CL) & Yellow Light (YL) and Non-Fermi Liquid (NFL).

## INTRODUCTION:

Every house hold utilizing CFL lamp in the range of 2 watt to 25 watt, A very large amount of lights are used to lightening the houses, bungalows, Industries & along the streets. The solar cells are acting as an intermittent source, even in day time efficiency is less and tracker is required. To utilize the power there is need of huge no of storage batteries, which needs to replace periodically. By this proposed system,  $\mu W$  power will be generated by single CFL, using the same Solar PV panel; the efficiency of CFL is more than LED lamp. By the empirical formula VGP is doped with Non-fermi liquid materials [1-3]. The doping elements Uranium metal with silica glass has capability of converting U. V. Radiation in to visible, Thorium coating is used to improve the rate of electron in cathode. Palladium is more precise than Silver having high transparency and silicon used in manufacturing process of Vaseline Glass material [4]. When CFL bulb is switched ON, it emits visible as well as UV radiations. There is a strong source UV radiation near by it, up to the limit of 10 cm. Visible radiations are directly related with power generation but also the whole amount UV radiations are converted in visible radiations which increase the efficiency of solar PV plate.

## CHEMICAL PROCESS:

**Vaseline Glass Plate-VGP** was produced in 1840 from Uranium Oxide known as Uranate. Uranate is ternary oxide which involves the elements of uranium in one of the oxidation state +4, +5 or +6 [5]. The uranates are of two types. First one is compounds of exact composition and second one is synthesized by combination of metal oxides. Uranate are found in yellow cake, the empirical formula is  $MxU_2O_7$ . For example, Barium diurate  $BaU_2O_7$ ,  $UO_6$ , where octahedral units are joined by sharing edges forming infinite crystallographic chains. The normal uranium colour glass in the form of vaseline illuminates yellow or yellow-green colour depends on oxidation states and concentration of metal ions in presence of U.V. light or lamp it fluorescence's bright green colour also beads absence of light source with black background reference figure 1.



(a)



(b)

Figure 1: Vaseline glass plate

### ii. $U_xTh_{1-x}PdSi_2$ , $x \leq 0.07$ , Non-Fermi Liquid Behavior of electron Metals

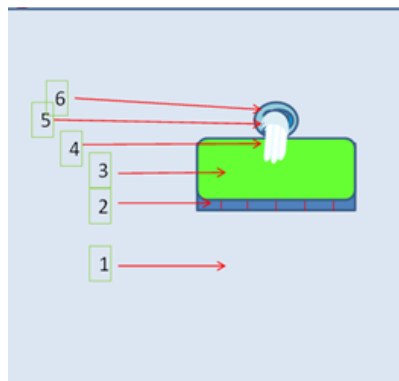
Amitsuka and Hindano in 1995 investigated  $UPt_2Si_2$  an antiferromagnetic material with  $T_N = 34K$ , doped with dilute limit of thorium. The magnetic susceptibility for  $x = 0.07$  in both c- & a-axis directions ( $UPt_2Si_2$ ) is tetragonal,  $\chi \sim T^{-1+\lambda}$  is lower temperature dependence for  $\rho$ . The specific heat between 1.7 and 10K for  $X=0.05$  and 0.07 showing Non-Fermi Liquid behavior but below 1.5K it will show Fermi-Liquid Behaviour.

### iii. Energy Efficient Material Composition

The basic material of Vaseline glass plate basically consist of max.0.05% to 0.2% of Uranium, generating Yellow Green Light fluoresces in day time and generates yellow fluorescence at night time, In converts total incident U. V. radiations in to Visible Radiations. Due to doping of other supporting materials like Th, Pd and Silica, the Non-Fermi Liquid Electron Metals the Vaseline Glass Plate shows better efficiency. Theoretically the efficiency is more than 10%. Intense yellow fluorescence at night time is developed across 2mm thick doped VGP, which will transmit about 80% of incident light from CFL towards solar PV plate [6-9].

### EXPERIMENTAL WORK

As shown in figure 1, When CFL is switched ON; Radiations are allowed to fall on the doped VGP by keeping it at the safe distance, less than 10 cm from the source. Up to this distance the U. V. Radiation spectrum of CFL is high. Also intensity of CFL is maximum and no problem of heat radiations to be incident on doped VGP. Below doped VGP, Solar PV Plate is fixed so that maximum amount (80%) of transmitted radiations will be utilized for generation of power. In this case whole amount of Visible Radiations will be directly transmitted through the doped VGP as well as the total U.V. Radiations of CFL are converted in Visible Radiations and allow to incident on Solar PV Plate .due to the fact the overall efficiency of Solar PV plate is increased theoretically more than 10%. Which is also depends upon the wattage of CFL and distance between CFL and doped VGP [10-12].

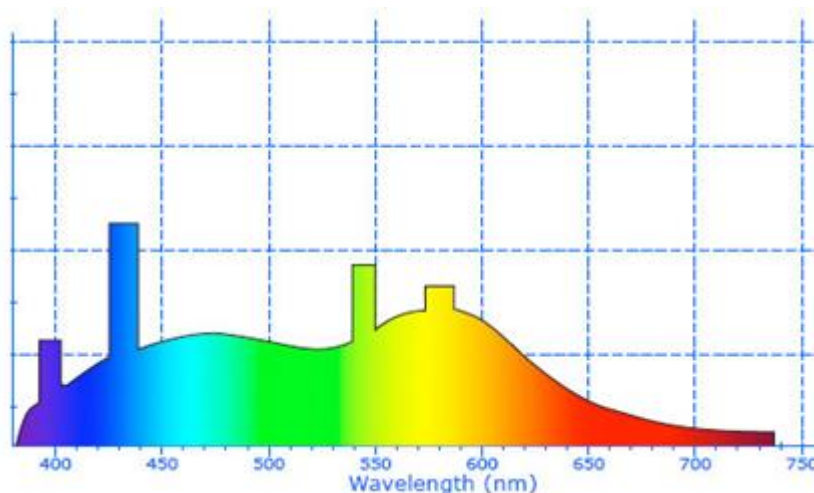


#### Labeling and specification

- |                         |   |
|-------------------------|---|
| 1] Wall of the house    | : CFL lamp fitted on wall                       |
| 2] Solar cell           | : 6 volt, 300 mA                                |
| 3] Vaseline glass plate | : 2 % to 25 % uranium doped glass plate         |
| 4] CFL lamp             | : 15 to 20 watt                                 |
| 5] Angle holder         | : 5 amp, 230 volt rating                        |
| 6] Grid supply          | : 230 volt, 5 amp, Single phase domestic supply |

Figure 2: Mounting of Vaseline glass below the CFL

When CFL is switched ON, The Visible as well as UV radiations are incident on doped VGP. VGP shows yellow colour fluorescence at night time in the form of monochromatic colour. Visible Radiations as well as the whole amount of UV converted in to the Visible are responsible for power generation from Solar PV panel. From CFL spectrum it is clear the yellow peak is at about 575 nm as shown in figure 1, it is the wavelength at which uranium atoms absorbs the UV rays, The atom instantly releases its activated energy as a visible light of green color. Hence the green light wavelength 550 nm is unique to the Uranium atom by this absorption process of uranium, it converts UV into Visible Radiations, Hence more power will be boost up with doped VGP[13-14].

**CFL SPECTRUM ANALYSIS WITH DOPED VGP:**

CFL Spectrum-1

**CONCLUSION:**

When Tungsten Filament Bulb or LED bulb of 25 watt will generate 28-30  $\mu\text{A}$  current with 3.1 V from the solar plate 6V, 300 mA placed at the distance less than 8cm. Whereas by using CFL at the same distance, the current rating are from 35  $\mu\text{A}$  and voltage ratings are from 3.9 volt. Hence the efficiency is increased by 10% VGP.

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