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| **DEMONSTRATION OF THE USE OF SEMICONDUCTING MATERIALS**  **COURSE 3911 MATERIALS I**  **9/24/2011**  **ANAND M. SHARAN,PROFESSOR** |

Semiconductors are used in widely different applications such as communications, computers , controllers etc. Figs 1 and 2 below show the use of semiconductors in the energy and environment areas.

Here, a solar panel made of semiconducting material – mostly silicon (very pure) is connected to the positive terminal of the battery. It is placed in the sun such that the sun’s rays are incident on it from a perpendicular direction to convert the maximum energy content of the sun’s rays – during the day. This way, the battery is charged.

In the night, a lamp having Light Emitting Diode (LED) as its bulb is used for illumination. This particular lamp has a 3 position switch. In one position, 18 LEDs are lighted when we need maximum light. After that, the switch is changed to another position when only 6 LEDs are illuminated while people sleep. In the day time, the third position of the switch is used when the lamp is off. This way, we use optimal amount of energy for our daily use.

These LEDs are also made of semiconducting materials. These are also used in wide variety of applications such as traffic signals, instruments etc. The light emitted by LEDs is a narrow pencil of straight beam of light. This is why one needs many such LEDs for wider area illumination.

