

modules. The optimal integration of PV cells into the surface of electronic devices may ask for flexible, geometrically tailored or even coloured components.

Especially for indoor applications it is essential to have light-energy converters with high conversion efficiencies at low illumination levels.

These diverse and partly conflicting requirements will result in the development of different types of PV converters, well suited to the individual applications. Dye or organic solar cells may find their first application in such market segments.

2.5 POWER FOR SPACECRAFT AND SATELLITES – THE EXTRATERRESTRIAL DIMENSION OF PHOTOVOLTAICS

The power supply of satellites has been the first professional application of photovoltaics (Vanguard I, 1958). While at the beginning military activities have been in the foreground of space power supply, today commercial activities play an important role as well: powering satellites for telecommunication, remote sensing, navigation and so on.

In these obviously off-grid applications, PV power supplies are more or less without technological competitors. Thus, solar electric systems of this kind would have been

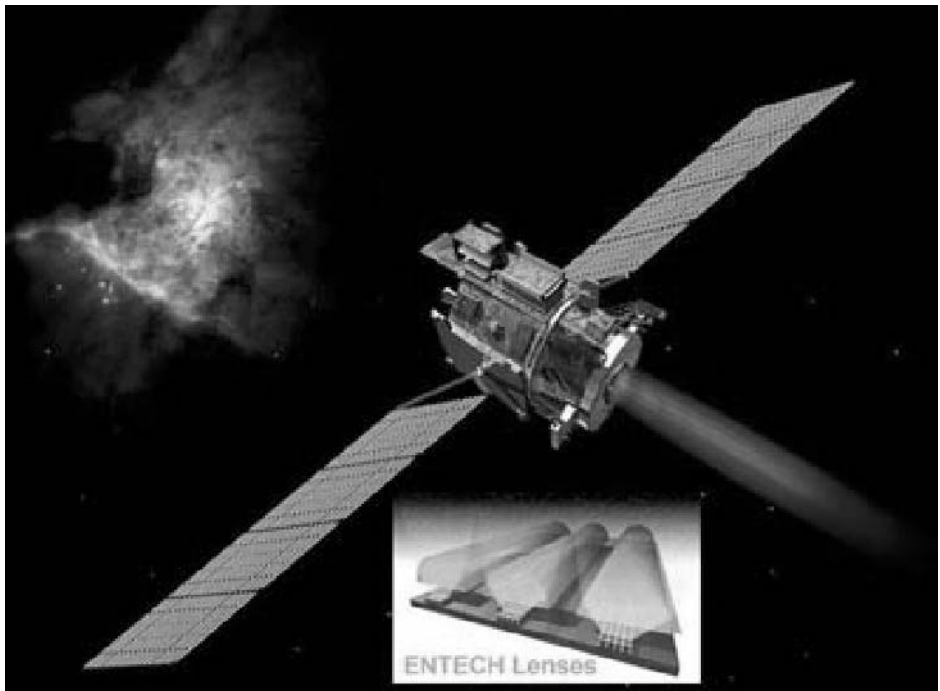


Figure 2.14 Artists view of the “Scarlet Deep Space One Satellite”. The satellite is equipped with triple-junction GaInP/GaAs/Ge photovoltaic cells. For the first time, optical concentration was applied with III/V space cells. Courtesy of NASA/JPL/Caltech