

Download Next Generation Photovoltaics : High Efficiency Through Full Spectrum Utilization

Third-generation photovoltaic cells are solar cells that are potentially able to overcome the Shockley–Queisser limit of 31–41% power efficiency for single bandgap solar cells. This includes a range of alternatives to cells made of semiconducting p-n junctions ("first generation") and thin film cells ("second generation"). Common third-generation systems include multi-layer ("tandem ...Solar energy is radiant light and heat from the Sun that is harnessed using a range of ever-evolving technologies such as solar heating, photovoltaics, solar thermal energy, solar architecture, molten salt power plants and artificial photosynthesis.. It is an important source of renewable energy and its technologies are broadly characterized as either passive solar or active solar depending on ...Another major prospect with regard to solar research is associated with the current drive toward reducing global carbon emissions, which has been a major global environmental, social, and economic issue in recent years .For example, 696,544 metric tons of CO2 emissions have been reduced or avoided via the installation of 113,533 household solar systems in California, USA .As the delta-V for a mission goes up, the amount of propellant required goes up exponentially (or looking at it another way: the amount of payload shrinks exponentially).Large amounts of propellant are expensive, but the higher the mass-ratio the higher the likelihood that the spacecraft will not be reusable.