

# NASA TECH BRIEF



NASA Tech Briefs are issued by the Technology Utilization Division to summarize specific technical innovations derived from the space program. Copies are available to the public from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia, 22151.

## Laser Beam Transmits Electric Power

**The problem:** To supply a sustained level of electrical power to a location that cannot be served by conventional conductors.

**The solution:** A semiconductor laser beam is directed to a remote photovoltaic cell where its light energy is converted to a constant electrical power level.

**How it's done:** Emission is stimulated in a gallium arsenide p-n junction to form a high density laser beam. This beam is directed to the remote location that cannot be reached by electrical conductors. The beam is detected by a gallium arsenide photodiode and reconverted to an electrical current. This steady, sustained current is then used to operate a device.

**Notes:**

1. This system, while effective, suffers from an appreciable loss factor which reduces its efficiency to a quite low level. It would only be useful in an application where the transmission of energy was

critical and could not be accomplished in any other way.

2. This innovation could be used to operate equipment located in a hazardous environment such as near or in a nuclear reactor or an extremely reactive chemical atmosphere.
3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer  
Goddard Space Flight Center  
Greenbelt, Maryland, 20771  
Reference: B65-10158

**Patent status:** NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: Radio Corporation of America under contract to Goddard Space Flight Center (GSFC-293)

Category No. 01