Paper ID: 21181
oral

SPACE POWER SYMPOSIUM (C3)
Advanced Space Power Technologies and Concepts (3)

Author: Prof.Dr. Vitaly Melnikov
Central Research Institute for Machine Building (JSC TSNIIMASH), Russian Federation,
melnikov45@list.ru

Prof. Vladimir Matiuhin
Moscow Institute of Radioelectronic and Automatic, Russian Federation, vla-kazmin@yandex.ru
Prof. Aleksandr Milovanov
State Space Corporation ROSCOSMOS, Russian Federation, melnikov45@list.ru

CENTRIFUGAL FIBER LASERS WITH SOLAR PUMPING FOR SPACE SOLAR POWER STATIONS IN ASTEROID SECURITY PROBLEM.

Abstract

1-10 GW space solar power stations (SSPS) with a possibility to transmit the energy to the Earth by 2050 may become the most energy efficient space objects. The need for SSPS is stipulated by the traditional energy resources cost increase and the natural disasters damage caused by traditional power engineering anthropogenic impact on the environment. In recent years, the world's growing interest in SSPS is connected with the infrared semi-conductor laser development progress and optical fibers. Their advantages are: the coefficient of efficiency of the power conversion into the infrared laser beam is up to 80Russia has the unique experience of centrifugal frameless designs as a base for SSPS solar batteries . Such designs have a number of significant advantages over the skeleton analogs. They are: the absence of a hard skeleton, constituting up to 50