

## ElringKlinger drives satellites

**Working in cooperation with the Institute of Space Systems (IRS) at Stuttgart University, ElringKlinger Kunststofftechnik GmbH, Bietigheim/ Germany, has developed a method whereby PTFE (Polytetrafluoroethylene) can be used as a fuel for satellite propulsion systems.**

Using PTFE as the base material, engineered-plastics specialist ElringKlinger Kunststofftechnik has created a solid fuel for thruster engines deployed on satellites and space probes used for communication purposes, weather monitoring and scientific experiments in space. These engines are required to position the satellites and alter their flight path.

The newly developed solid fuel is particularly suited to space applications. It is easier to handle and more robust than liquid fuel. In addition, compared with conventional chemical propulsion methods, it reduces the overall fuel requirement by two-thirds. Given the space constraints of a satellite that is just one cubic meter in size, lower fuel loads are a significant advantage. The PTFE-fuelled propulsion systems can be ignited as often as required and produce acceleration speeds of more than 12 kilometers, i.e. approx. 7.5 miles, per second.

The ion thrusters, with PTFE fuel developed by ElringKlinger, are to be used for the lunar mission BW 1 (Baden-Württemberg 1).

### Dr. Michael Schlipf receives Plunkett Award 2007

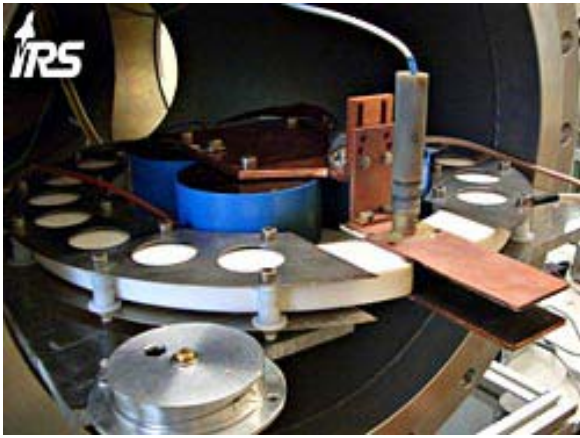
On January 21, 2007, the joint research team headed by Dr. Michael Schlipf from ElringKlinger Kunststofftechnik as well as Dipl.-Ing. Anuscheh Nawaz and Dr.-Ing. Georg Herdrich from the Institute of Space Systems were presented with the 2007 DuPont Plunkett Award in recognition of their outstanding contribution to polymer technology. The research group is currently looking to adapt the drive system for use in other fields of application, e.g. within the area of laser technology.



Newly developed by ElringKlinger; a solid PTFE-based fuel for the satellite thruster used on the Baden-Württemberg 1 lunar mission. (Photo: IRS Stuttgart-University)



from left to right  
Dipl.-Ing Anuscheh Nawaz; Institut für Raumfahrtssysteme Stuttgart-University, IRS  
Dr. Michael Schlipf,  
ElringKlinger Kunststofftechnik GmbH  
Jean-Christophe Robert,  
Varioptic



Test model on the semi-rings made of Teflon PTFE solid fuel. (Photo: IRS Stuttgart-University)

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