

**TL dose measurements on board the Russian segment of the ISS
by the “Pille” system during Expedition-9 and -10**

I. Apáthy¹, Yu.A. Akatov², V.V. Arkhangelsky², L. Bodnár³, S. Deme¹, I. Fehér¹, I. Padalka⁴,
T. Pázmándi¹, G. Reitz⁵, S. Sharipov⁶

¹KFKI Atomic Energy Research Institute, Hungary, ²Institute for Biomedical Problems, Russia,
³BL-Electronics, Hungary, ⁴Gagarin Cosmonaut Training Center, Russia, ⁵
German Aerospace Center (DLR), Germany, ⁶Russia's Federal Space Agency

The most advanced version of a thermoluminescent (TL) dosimeter system (“Pille-MKS”) developed by the KFKI Atomic Energy Research Institute (KFKI AEKI) and BL-Electronics, consisting of ten CaSO₄:Dy bulb dosimeters and a compact reader, was successfully installed on board the ISS in October, 2003. The Pille-MKS dosimeter system is applied for the routine and EVA individual dosimetry of astronauts / cosmonauts as part of the service system as well as for onboard experiments and operated by the Institute for Biomedical Problems (IBMP). It is unique providing accurate and high resolution TL dose data already on board the space station which became increasingly important during the suspension of the Space Shuttle flights.

In accordance with the common Russian-American working document *ISS 8 IDRD*, seven dosimeters are located at several places of the Russian segment of the ISS and read out once a month, two dosimeters are dedicated for EVAs and one dosimeter is kept in the reader and read out automatically every 90 minutes.

During particular events like coronal mass ejections, hitting Earth incidental measuring campaigns are intercalated with frequent readouts.

In this paper we report results of dosimetric measurements made aboard the International Space Station during Expedition-9 and -10 using the “Pille” portable TLD system and compare them with our previous measurements on the ISS.