

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Radiation Fields, Effects and Risks in Human Space Missions (5)

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TRITEL-B: CONCEPT FOR MEASURING DEPTH-DOSE AND DEPTH-LET ON THE
RETURNABLE BIOLOGICAL SATELLITE BION-M2

Abstract

BION-M2 is a returnable biological satellite programme led by the Institute for Biomedical Problems, Russian Academy of Sciences. The objective is to study zero-gravity and space radiation impacts on living organisms at about 800 km above the Earth's surface. TRITEL-B, one of the scientific payloads on the returnable capsule, is a one-dimensional six-detector silicon detector telescope, also comprising a passive dosimeter package of solid-state nuclear track-etch and thermoluminescent detectors. The instrument is under development at the Centre of Energy Research, Hungarian Academy of Sciences in cooperation with the Institute for Biomedical Problems, Russian Academy of Sciences. TRITEL-B will support biological experiments with dosimetry data. In order to determine the depth-dose and depth-LET relationship,

aluminum absorbers will be placed in between pairs of detectors in the telescope. Measurement data will be stored in an internal memory of the instrument and downloaded on ground after retrieval. Scientific objectives of the experiment and a detailed description of the instrument will be given in the paper. Results of the preliminary calculations of the space radiation environment and the expected measurement ranges will be also presented.