

TASK GROUP 115

Risk and Dose Assessment for Radiological Protection of Astronauts

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Introduction

Context

- Exposure to space radiation is one of the challenges faced by human space flight; protecting astronauts from exposure exceeding an acceptable level of health risk is the common goal of national and international space programs. Methods, quantities, metrics and limits used for dose and risk assessment, and for protection, vary among space agencies across the world.

Motivation

- ICRP was requested by the International Space Station Agencies to provide guidance on health effects and a consensus framework for radiation exposure limits for human spaceflight.

Objective and Scope

- TG115 will build on the work in Publication 123, to develop a comprehensive framework for risk and dose assessment for radiological protection of astronauts, providing guidance on radiation health effects and protection metrics and limits

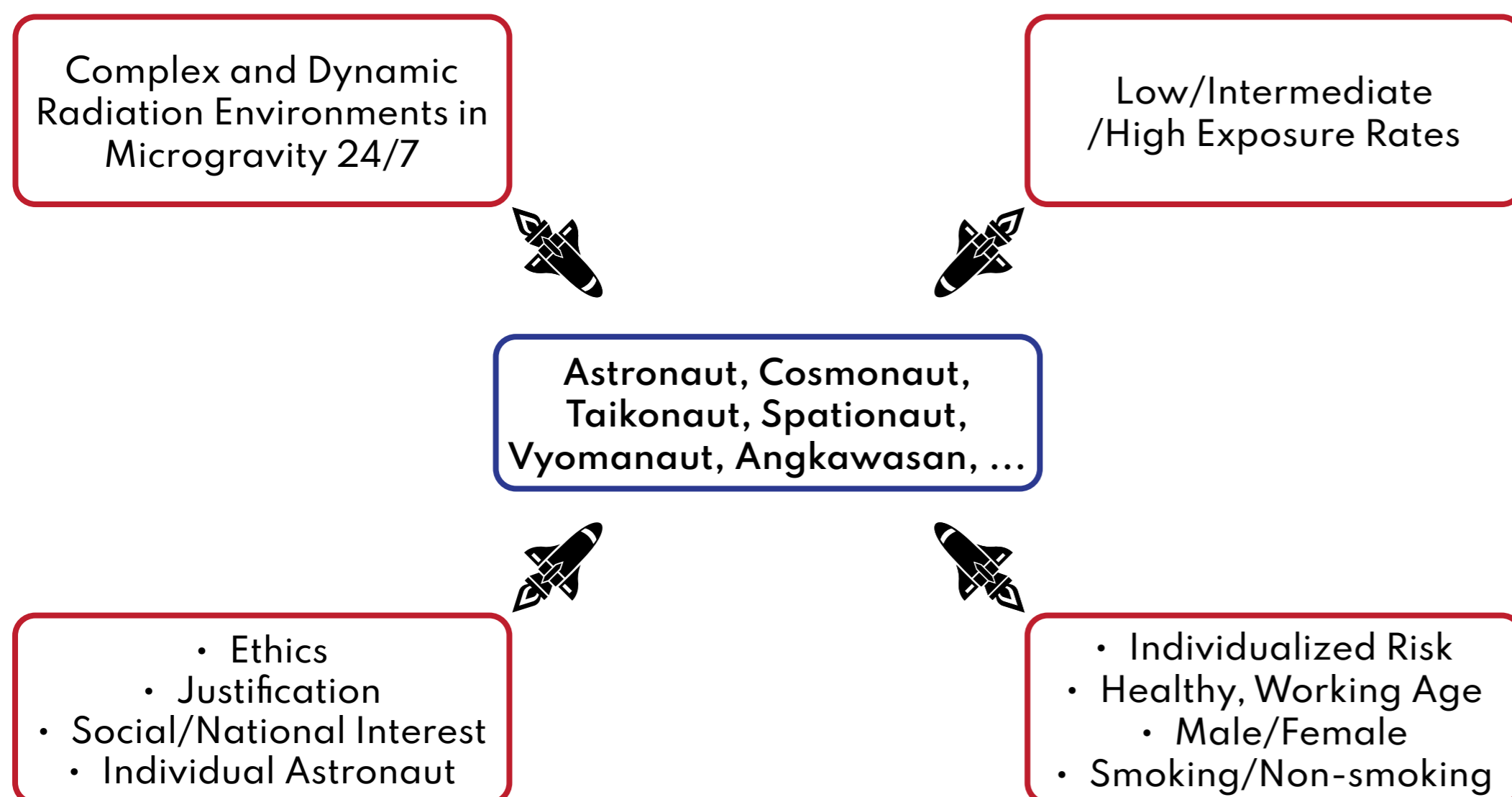


Fig 1. Considerations for radiation exposure in space

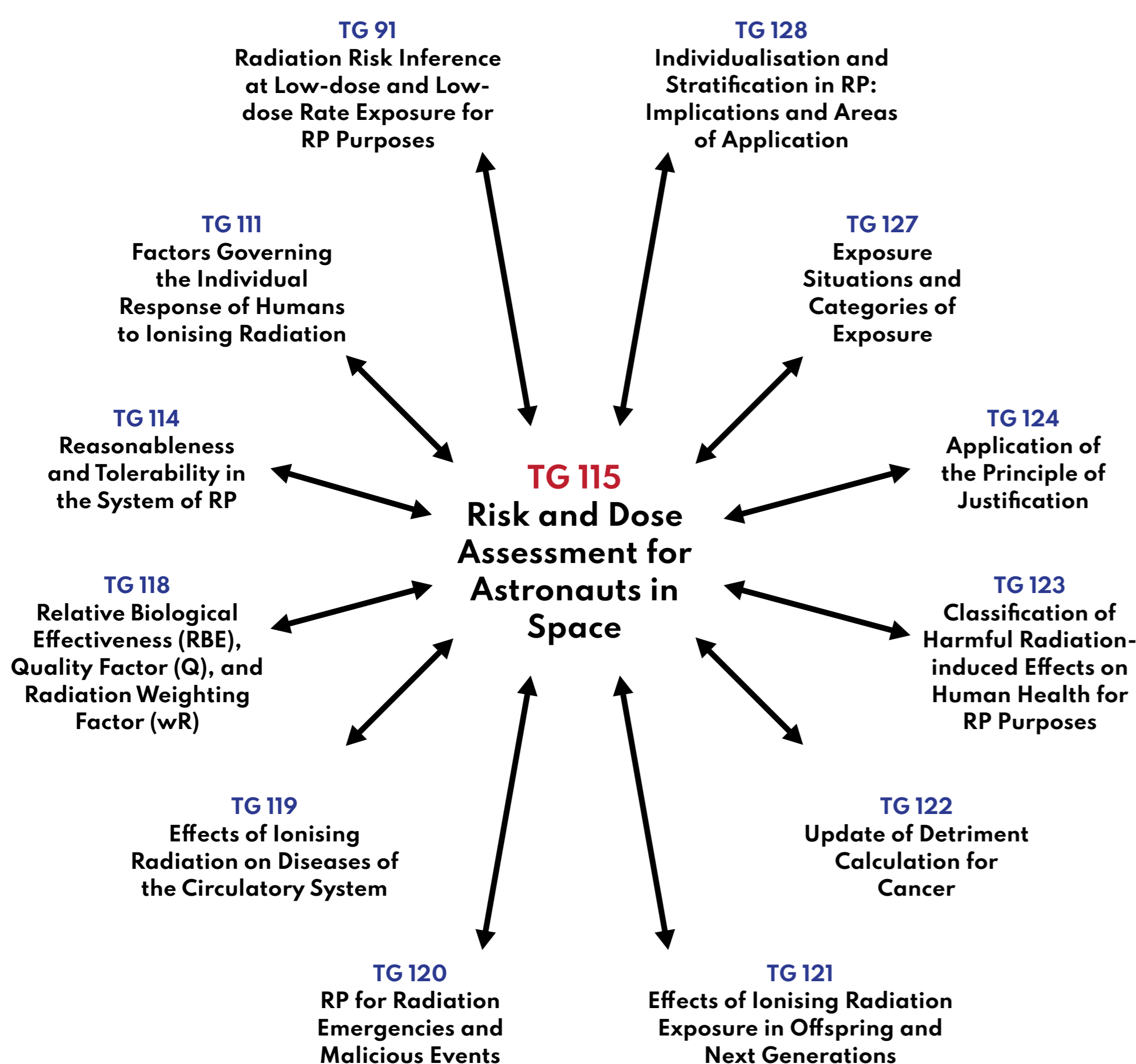
Work Done by TG 115

To date, Task Group 115 has reviewed the knowledge and emerging evidences on various health effects from radiation exposure, reviewed and compared the methods and standards used by space agencies for dose and risk assessment, and evaluated new risk metrics that may be applicable. The Task Group has published four papers in a Special Issue on Space Radiation Research in Zeitschrift für Medizinische Physik (Journal of Medical Physics):

- Rühm et al. (2023) System of Radiological Protection: Towards a Consistent Framework on Earth and in Space. Zeitschrift für Medizinische Physik.
- Shavers, et al. (2023) Space Agency-specific Standards for Crew Dose and Risk Assessment of Ionising Radiation Exposures for the International Space Station. Zeitschrift für Medizinische Physik.
- Shavers, et al. (2023) Comparison of Dose and Risk Estimated Between ISS Partner Agencies for a 30-day Lunar Mission. Zeitschrift für Medizinische Physik.
- Ulanowski, et al. (2023) Time-integrated Radiation Risk Metrics and Interpopulation Variability of Survival. Zeitschrift für Medizinische Physik.



Task Groups Related to TG 115



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