**PDC2021**

**Vienna, Austria**

**X Key International and Political Developments**

**Advancements and Progress in NEO Discovery**

**NEO Characterization Results**

**Deflection and Disruption Models & Testing**

**Mission & Campaign Designs**

**Impact Consequences**

**Disaster Response**

**Decision to Act**

**Public Education & Communication**

**SCOPE AND OBJECTIVES OF THE SPACE MISSION PLANNING ADVISORY GROUP**

**Gerhard Drolshagen(1), Romana Kofler(2) and Detlef Koschny(3,4)**

(1)*University Oldenburg, Faculty VI, Pius Hospital, Georgstrasse 12, 26121 Oldenburg, Germany, +491708375507, gerhard.drolshagen@uol.de*

(2)*UN Office for Outer Space Affairs (UNOOSA), Wagramerstrasse 5, 1400 Vienna, Austria, +431260604962, romana.kofler@un.org*

(3)*ESA ESTEC, Keplerlaan 1, 2201 AZ Noordwijk, The Netherlands*

(4) *LRT / TU Munich, Boltzmannstraße 15, Garching bei München 85748, Germany*

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##### ABSTRACT

This work is presented on behalf of all members of the Space Mission Planning Advisory Group, SMPAG, (pronounced “same page”).

SMPAG brings together space agencies and offices of member states to discuss and plan collaborative and cooperative projects to develop technologies and test techniques for the diversion or disruption of a potentially threatening NEO while it is still in space. As per its Terms of Reference [1], the objectives of SMPAG are to develop cooperative activities among its members and to build consensus on recommendations for planetary defence measures. SMPAG addresses the following main areas:

1) *Reference missions, technology roadmaps and collaborative research*

*2)    Communication and exchange of information*

*3)    Legal and policy aspects*

*4)    Mitigation planning activities*

SMPAG membership is open to all national space agencies or governmental or inter-governmental entities that coordinate and fund space activities and are capable of contributing to or carrying out a space-based NEO mitigation campaign. Each SMPAG member nominates its delegates and a leader. The delegation leaders form the SMPAG Steering Committee. UNOOSA serves as the secretariat to SMPAG [2].

To fulfil its mandate, SMPAG established a work plan with technical issues to be addressed by its members. This document defines specific SMPAG tasks in terms of scope, content and schedule. The work of SMPAG is done on a voluntary basis. Decisions are taken by consensus.

As the name suggests SMPAG is an advisory group only. It prepares mitigation options for different threat and mission scenarios. In case of a real impact threat, it will provide advice on potential courses of action to decision makers but has no decision power itself.

**First Results of SMPAG**

IAWN and SMPAG work in close cooperation. As a first result, joint criteria were established for the start of mitigation planning.

SMPAG should start mission option(s) planning when warned of a possible impact:

* Predicted to be within 50 years,
* Probability is assessed to be greater than 1%, and
* Object is characterized to be greater than 50 metres in size, or roughly equivalent to absolute magnitude of 26 if only brightness data can be collected.

SMPAG has also issued recommendations to perform a demonstration mission to deflect an asteroid and for a fast NEO reconnaissance mission.

In 2016, SMPAG decided to establish the SMPAG Ad-hoc Working Group on Legal Issues to address possible legal questions related to the work of SMPAG.

As a first result this group produced a report reviewing and assessing existing space laws, which could be relevant for space missions aimed to mitigate an impact threat from a NEO. More details on the work of the Legal Working Group are presented in a separate paper at this conference.

[1] Terms of Reference for the Near-Earth Object Threat Mitigation Space Mission Planning Advisory Group (SMPAG) (Version 2.0, 13 September 2019)

[2] UN General Assembly resolution A/RES/71/90, para. 9 (6 December 2016).

***Comments: Oral presentation***