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## REZENSION

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Outer Space – Future for Humankind, Issues of Law and Policy  
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The book is dedicated as *Liber Amicorum* to *George Robinson* (1937-2018) as an inspirer in space law and policy. *George Robinson* was convinced that extraterrestrial settlements are a necessity for humankind and he wrote books like 'Living in Outer Space (1976)' or 'Envoys of Mankind: A declaration of First Principles for Governance of Space Societies (1986)' (with *H.M. White*). He started his professional career as attorney advisor at the Federal Aviation Agency (FAA), worked as International Relation Specialist for NASA and then 25 years for the Smithsonian Institution. During this time, he organized conferences on different aspects of space exploration and human settlement. His wide range of interest from space visions to practical legal problems is also reflected in the *Liber Amicorum*.

The book is divided in two main parts about I) Looking Ahead and II) Conflicts and Challenges, followed by Part III about *George Robinson* the Inspirer. The publication contains 20 different chapters touching issues such as new space, perspectives for global commons, safety matters, sustainability, arms control, space traffic management, safe nuclear power, regulations for constellations, cyberlaw, environmental aspects and much more. The departure for Moon and Mars should be a responsible way, taking into account that our original habitat should not be sacrificed. The broad spectrum of topics is realized by an international team of technical experts, lawyers and political scientists. Specific policy matters are the safe and sustainable use of space technology and the peaceful, equitable and responsible use of outer space. Problems of technical nature are presented without neglecting the wider legal and policy context. As envisaged by *George Robinson* as a space lawyer and visionary a number of elements of this 'journey' are already under development.

In part I *Gary L. Bennett* presents early fictions of space flight, going back to the ancient Greeks. The overview might result in the conviction that the visions of the past will become the stories of the future. One example is the reality of space tourism. A more fundamental political question is put forward by *Jean-Francois Mayence*, namely 'Space Colonies: Is History Repeating?'. The American concept of 'Frontier', the crisis of multilateralism and the NASA Artemis Accords are analyzed. The Asgardia project and space colonization are described in relation to secession and a declaration of a self-sovereign status. *Kai-Uwe Schrogl* continues the critical analysis of present developments with his chapter about perspectives for outer space as a 'Global Common'. The value of the three global commons (Space, Antarctica and high seas/deep seabed) as State-free areas is outlined in a context of innovative international law, peacekeeping and international project-based cooperation. Key conflict issues are addressed. The *author* reminds us that *George Robinson* was a highly vocal advocate of ethics applied in outer space and that it is today necessary that civil society becomes aware of a number of problematic trends.

New space aspects by *Dimitry Payson* and a focus on the framework applicable to the establishment and operations of private human industrial bases on extra-terrestrial soil by *Philippe Clerc* complement the picture of 'looking ahead'. This first part is an excellent composition of visions, concrete economic and legal aspects, as well as speaking plainly about conflict and policy issues.

Part II gives a profound overview over present conflicts and challenges in space activities. The most fundamental questions are examined in twelve chapters. *Gerard Brachet* and *Peter Martinez* introduce the international challenges to the safety, security and sustainability of outer space activities. Security concerns of cyber warfare are picked-up by *R.P. Rajagopalan*. *Jürgen Scheffran* gives an overview over the different arms control initiatives and reminds us of an initiative of four scientists who presented in 1984 a 'Draft treaty on the limitation of the military use of outer space'. Taking into account the growing militarization of outer space this draft and the described alternative approaches of arms control in space are definitive of current interest. *Marc Becker* looks at the operational realities and enters in the open issue of Space Traffic Management (STM), the 'wicked public policy problem'. The reader learns about the divergent policy approaches between military interests and a long-term rules-based international STM regime. A traffic rule regime will depend on accessible space surveillance and tracking capabilities.

Four chapters are dedicated to environmental questions of space activities. The team of *Carsten Wiedemann* presents the technical aspects of space debris. The conflict between oceanic dumping of space objects and conservation of marine biodiversity is the subject of *Vito de Lucia*. *Ruwantissa Abeyratne* turns the light on launches, rocket propulsion and the ozone layer. The *author* team of *Ram Jakhu* elaborates different aspects of satellite constellations and orbital pollution. A special documented aspect is the light pollution. Since advanced exploration missions will depend on nuclear power elements; two chapters are dedicated to nuclear power sources (NPS). *Gary Bennett* outlines the benefits and *Ulrike Bohlmann* and *Matija Rencelj* the aspects of environmental law. Part II concludes with two specific legal aspects. *Ingo Baumann* and *Erik Pellander* deal with the topic of New Space and National Space Legislation. The New Space wave has an impact on licensing procedures and the chapter presents examples of countries responding to this development. *Setsuko Aoki* deals with a special aspect of new space projects, the deployment of satellites from the space station. She sees the need for a further clarification of launch and registration questions.

A last chapter enters into cybernetics, aspects of metalaw and philosophical questions of a world with humans, transhumans and posthumans. Initiated by *George Robinson* and finalized with *P.J. Blount* the subject of transhumanism became a final point of interest for the jubilee. The chapter examines possible frameworks for a common understanding of interspecies. The book started with visions of the past, covers challenges of the presence and conclude with visionary reflections. The *Liber Amicorum* is highly recommendable for all practitioners and space experts interested in widening the view and entering in the complex challenges of today's and future space activities.