

China and U.S. Lunar Cooperative Platforms: Competition or Cooperation?

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ABSTRACT

China's International Lunar Research Station and the U.S. Artemis program, with different primary purposes and cooperative patterns, is clearing a path for a new mixture structure and the interplay of competition and cooperation among space powers. The new era of strategic competition relations since 2017 amid the expansion of national interests in outer space has been adding increasing intensity and complexity in their space relations. There is renewed need to strengthen the role of cooperation in the Sino-U.S. to ensure the peaceful, orderly, and sustainable development of lunar activities. The configuration discourse of these two lunar cooperative ventures shall be utilized to improve the organizational structure and competition and cooperation interplay between China and the United States and among space powers.

Keywords: International Lunar Research Station, Artemis Programs, Cooperation in Lunar Activities, Competition and Cooperation Interplay, Space Power Competition, Sino-U.S. Strategic Competition Relations, Sino-U.S. Space Relations

Plataformas cooperativas lunares de China y Estados Unidos: ¿competencia o cooperación?

RESUMEN

La Estación Internacional de Investigación Lunar de China y el programa Artemis de Estados Unidos, con diferentes propósitos principales y patrones cooperativos, están allanando el camino para una nueva estructura mixta y la interacción de competencia y cooperación entre potencias espaciales. La nueva era de relaciones de competencia estratégica desde 2017 en medio de la expansión de los intereses nacionales en el espacio ultraterrestre ha ido añadiendo cada vez más intensidad y complejidad a sus relaciones espaciales. Existe una renovada necesidad de fortalecer el papel de la cooperación entre China y Estados Unidos para garantizar el de-

sarrollo pacífico, ordenado y sostenible de las actividades lunares. El discurso de configuración de estas dos empresas cooperativas lunares se utilizará para mejorar la estructura organizativa y la interacción de competencia y cooperación entre China y Estados Unidos y entre las potencias espaciales.

Palabras clave: Estación Internacional de Investigación Lunar, Programas Artemis, Cooperación en actividades lunares, Interacción de competencia y cooperación, Competencia de energía espacial, Relaciones de competencia estratégica entre China y Estados Unidos, Relaciones espaciales entre China y Estados Unidos

中美探月合作平台：竞争还是合作？

摘要

中国国际月球科研站与美国阿尔忒弥斯计划的主要目的和合作模式不同，正在为“航天大国形成新的混合结构、竞争与合作”一事开辟道路。2017年以来，随着国家的外空利益拓展，战略竞争关系进入新时代，两国太空关系的强度和复杂性不断增加。中美再次需要加强合作，确保探月活动的和平、有序、以及可持续发展。应利用这两个月球合作项目的配置话语，以改善中美之间、以及航天大国之间的组织结构、竞争与合作。

关键词：国际月球科研站，阿尔忒弥斯计划，月球活动合作，竞争与合作互动，航天力量竞争，中美战略竞争关系，中美空间关系

The purpose of this paper is to explore the Sino-U.S. cooperation and competition interplay within the new paradigms of great power competition relations with emphasis on their lunar cooperative platforms.

1. The Competition and Cooperation Interplay in Outer Space and Its Impacts on Sino-U.S. Space Relations

An intriguing dilemma in outer space is the thematic paradox of cooperation born of competition. Inter-state competition has been constant for reasons of prestige and honor, the contest between ideologies, and securing determinants of military, scientific or economic power or writing the rules of space order (Dolman, 2002). Meanwhile, the sovereign states tend to cooperate to moderate their competi-

tion mostly through self-restraining to redirect into safer and more sustainable access to and uses in outer space. It is difficult to isolate a single case of cooperation without finding a basis in competition and conflict. The interplay of competition and cooperation sets the stage for dialogue of and sustains the overall direction of international space development and security.

There is a lack of mutual confidence between China and the U.S. in outer space for a mixture of reasons, including the long-existing ideological U.S. prejudice and the low-level transparency of China's space activities. The United States has viewed China as a near-peer competitor, a strategic competitor, even a rivalry since the launch of its first taikonaut in 2003. The bilateral space cooperation is tortuous and minimal (WU, 2022). There was a brief window when China provided launch services to the United States during the 1980s and the 1990s, when bilateral memoranda allowed 26 American commercial satellites to be launched on Long March rockets on a case-by-case export license basis. But this cooperation came to a halt in 1999 because of the economic, political and other complex geopolitical factors primarily related to the United States concerns about the technology transfers to China, as indicated in the Cox Report. Their cooperation has been further diminished to zero due to the Wolf Amendment of 2011, which stipulate that no appropriated funds shall be used by the NASA or the White House Office of Science and Technology Policy to cooperate bilaterally in any way with China. Ever since,

the Sino-U.S. space cooperation has hit its lowest point, even lower than that between the U.S. and the Soviet Union during the Cold War.

2. A Comparison of International Lunar Research Station and Artemis Program

China's rise as a space power is one of the defining developments in international space community in the 21st century. However, the paradox is that China's power is defined in terms of space capacity but barely in terms of space cooperation. China's space cooperation is disproportionately underdeveloped in comparison with the degree of advancement of its capability. The overall layout of the China Lunar Exploration Program (CLEP) embraces international participation in many ways, but its implementation has only resulted in a handful of contributed payloads and scientific data sharing. Beijing has been trying to remedy and reverse this situation by resorting to multilateralism, characterised by a proactive approach to dealing with external constraints and increasing soft power. It is in this political context that the vision for the International Lunar Research Station (ILRS) has been developed since 2016. The primary motivations of conceiving this multilateral cooperative platform are enhancing China's influence in the international arena through the extension of its version of techno-nationalism and advancing China's interests in space order (WU, 2023).

China's National Space Agency (CNSA) formally announced the ILRS

proposal in 2019 as revealing the future development of its lunar exploration program. This is China's first initiative on a multilateral cooperative platform for a specific program, as opposed to incorporating foreign contributions into the implementation process, as with the Chang'E Program. The essential goal is to establish a research platform and infrastructure complex on the moon's surface and in its orbit, with the possibility of long-term unmanned operation and the prospect of a human presence. It will be carried out through several missions from 2020 to 2035, which can be roughly divided into the reconnaissance, construction, and utilisation phases. The Artemis program is a U.S.-led international endeavour that was announced in 2019 and similarly aims at establishing a long-term presence on the moon, including the return of astronauts, through close collaboration with commercial and international partners based on the Artemis Accords.

The primary purposes and cooperative patterns of these two platforms are different. The Artemis program is contextualizing with the primary focus of gaining economic benefits (Goswami & Garretson, 2020), trying to build a U.S.-centric platform based on bilateral cooperation. The Artemis Accords, unilaterally elaborated by NASA as the ground rules, form an integral part of any subsequent agreement with its international partners. The states wishing to participate in Artemis Program must commit in advance to abide by the Artemis Accords. The economic-benefits focus and corresponding principles of the Artemis Accords outstrip the exist-

ing UN treaty framework, which regulates all space activities but with a focus on the traditional explorational, instead of novelty utilization and exploitative aspects of space activities. The Artemis Accords incorporate several controversial legal notions and have caused controversy over their compliance with the 1967 Outer Space Treaty, particularly the conformity of legalizing the property rights with the non-appropriation principles of OST Article II. As of November 2023, the Artemis Accords has consolidated a sizable list of signatory nations, 31 states, going beyond the U.S. allies and spanning from competent to non-competent space states covering different geographic areas (Deplano, 2021). The obvious diversity of these signatories indicates the formation of the Artemis partnership. The U.S. dominant cooperative structure and the controversy over the Artemis Accords has not prevented this formation.

The ILRS is contextualizing in the context of increasing China's relevance in international space society, focusing on scientific exploration through multilateral cooperation (WU, 2023). CNSA and Roscosmos signed a Memorandum of Understanding (MoU) on the ILRS in March 2021 (China National Space Administration, 2021). The Roadmap and Partnership Guidelines were released 3 months later, which are supposed to be continuously and gradually updated with milestone layouts and plans, as well as the procedures for future partners to participate in this venture (China National Space Administration, 2021). According to the ILRS Guidelines, cooperation opportunities

are promised to interested countries and other entities in all phases and various forms and at all hierarchical levels. The categorized mechanism based on cooperation level guarantees plenty of participation opportunities and encourages foreign involvement based on their own situation. Additionally, there are only basic principles of equality and integrity for cooperative activities, and their substantial content and specific institutional arrangements are pending negotiation. Hence, participatory states will have their say in the future cooperative pattern and legal framework. However, there are only two official ILRS partners, China and Russia, and two more states, Venezuela and Azerbaijan, expressed their willingness to participate, through joint declarations in 2023 without specific information on cooperation scope, means and other arrangements. This hardly constitutes a multi-partnership after four-year announcement, although there are other states considering joining. The major reason is the fact that the soft power in space field primarily lies within the hands of the United States, which has established strong and stable space partnership over the last decades. International space politics continue to be defined by the policies and preferences of the United States as the leading space power, but a leadership transition is occurring because of China's attempts to assume the role of a "responsible power" (Stroikos, 2022). By contrast, China is less attractive as an initiator of a large-scale cooperative venture. The ILRS must establish a progressive and tolerant institutional structure, antici-

pating reluctance, hesitation, and rejection, and offering significant benefits to stimulate cooperation commitments.

2. Retune Sino-U.S. Space Relationship in Lunar Activities within Great Power Competition Framework

2.1 The New Era of Sino-U.S. Space Relation: Great Power Competition

Great power competition between China and the United States has become an ever-increasing nexus of national security focus and attracted much international attention. The evolutionary change of the Sino-U.S. relations, from strategic partnership to great power competition, is mostly evidenced by the U.S. approached towards China (Porter, 2019; Campbell & Sullivan, 2019; Thurston, 2021; Mearsheimer, 2021). In U.S. policy documents, the definition of great power competition first appears in the 2017 National Security Strategy and was repeated and emphasized in the major national documents on national security, military strategy, and space policy since then. Beijing denied the existence of competition and race and refuted this designation as inaccurate and untenable but has taken the situation seriously, preparing for this paradigm-changing situation.

Outer space has re-emerged as a central arena of great power competition. The space power competition amid the expansion of national interests in outer space are increasing the intensity

and complexity of competition and cooperation interplay between China and the United States. As space powers, they are the primary actors of space activities and shaping force of space development and security. When space systems are integrated and used for various purposes, the vital national interests started from focusing on the military, scientific and technological, and political dimensions and are now extending to societal concerns, economic gains, and commercial benefit. The multifaced nature of national interests is owing to the dual-use nature of outer space and the expanding scope of the term “security” entailed by the space’s unique security dynamics. Consequently, there is a rising tide of global space nationalism and militarism in response to mutual distrust and perceptions of nefarious intent in space (Johnson-Freese, 2017). This is also contributing to a mainstreaming trend of space relations in the Sino-U.S. relations.

The two long-term and large-scale lunar cooperative platforms are embarking upon a new mixed structure of cooperation and competition adding increasing intensity and complexity in the relations among space powers (Goswami & Garretson, 2020; Dawson, 2021). The ILRS initiative will significantly strengthen and improve China’s status as a space power in direct opposition to the United States on the frontline of the final space frontier. For the first time, China and the United States will be actual competitors in their intentionally chosen programs within roughly the same time period, though it might not be China’s primary or initial

intention to compete the United States.

2.2 Retune the Imbalanced Competition and Cooperation Interplay

The fact that China has becoming a space power effectively proves that the ban on cooperation is ineffective and counterproductive. The primary concern of the United States over space cooperation with China is technology transfer. The implementation of the ILRS will help the United States perceive China as a peer and open the possibilities for renewing cooperation when the exchanges of knowledge are unlikely to significantly alter the balance of their relationship. There is renewed need to strengthen the role of cooperation in the Sino-U.S. as a binding component of space security to reduce the uncertain result and the conflict potential and ensure peaceful, orderly, and sustainable development of lunar activities, including health development of space economy and the effective functioning of the international market for space industry. The configuration discourse of lunar cooperative platforms shall be utilized to improve the organizational structure and competition and cooperation interplay between China and the United States and among space powers.

As for China, initiating ice-breaking engagement and cooperation with the Artemis Program shall be based on the following considerations. First, the priority of establishing IRLS is the solicitation work for the partners to match its ambitious title and complete its layout. Russia’s involvement might jeopardize the international prospects

of the ILRS in the coming years if the geopolitical tension associated with the Russia–Ukraine war substantially extends to the space sector. The counter the dissuasive effect of Russia’s involvement, targeted confidence building, and engagement measures shall be taken to attract space competent countries and entities, among which the United States marks the top-one candidate. Second, China is a newcomer to leading large cooperation projects. To compensate for its inexperience as a leader of cooperative venture, a practical approach entails taking the Artemis program as a reference object through engagement and cooperation. The United States has been successful in the management of multilateral cooperation and the promotion of space economy development through policy encouragement and institutional designs. China should incorporate useful lessons into the construction of its lunar station and further incorporate market-oriented development model into its government-dominant model. Third, Russia’s participation could impede China’s bid for leadership. But the future of the Russian space industry is bleak, given the intensity of sanctions imposed and its already fragility due to the shortage of vital technological components and human resources. Russia will be relying more heavily on China in lunar missions and the improvement of coop-

eration with the U.S. could be helpful for China to reverse the previous leader-follower status with Russia in their ILRS cooperation. Fourth, space power cooperation in lunar exploration and utilization is proceed mainly between blocs: the U.S. and its allies, and China and Russia cooperation. This entails a danger that competition may turn into race and confrontation. Therefore, a mutual political willingness of China and the U.S. to progressively improve their space relations, such as the establishment of a bilateral mechanism for information sharing and dialogue and cooperation in small scientific and commercial missions, can be constructive to sustain competition and cooperation interplay among space powers for the creation of necessary and sufficient conditions for the sustainable development of space security.

3. Concluding Remarks

The Sino-American relations are at the crossroad towards cooperation or discord, being constructive or destructive to international space development and security. There is ever-increasing necessity and importance to ignite cooperation in their lunar programs to overcome the imbalance of competition and cooperation interplay.

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