

Criminal Jurisdiction in International Space Law: Future Challenges in View of the ISS IGA

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Traditional international space law attributes the right to exercise jurisdiction over the space object to the State of registry, according to Art. VIII of the Outer Space Treaty (OST). This enables the application of the so-called “quasi-territorial” criminal jurisdiction on board. However, for the first truly multinational space project so far undertaken, the International Space Station (ISS), a different rule was chosen: the active nationality principle, whereby jurisdiction over crimes committed aboard the ISS is conferred to the national State of the alleged offender (Article 22 (1) IGA). In addition, Art. 22 (2) lays down under certain restrictions the passive nationality principle, i.e. jurisdiction according to the nationality of the victim.

The ISS Inter-Governmental Agreement was thus the first legal instrument to establish concrete rules on international criminal jurisdiction in outer space. Coupled with criminal jurisdiction are two additional issues that have also been addressed by the IGA and by its related text, the ISS Crew Code of Conduct (CCOC): extradition, and the commander’s disciplinary authority on board.

In the future, legal challenges arise from mainly two kinds of potentially international space missions: private orbital stations, and interplanetary missions. The present paper explores whether the IGA rules on jurisdiction, extradition and disciplinary authority should apply to each one of these missions. It is submitted that private space endeavors should be better subject to the general rule of criminal jurisdiction of the State of registry, which would be also ultimately competent to establish the disciplinary authority on board. However, since multinational interplanetary missions will be conducted mainly by States, rules more similar to the IGA could apply. Given the highly cooperative character of such missions, the most appropriate solution would be the active nationality principle combined with rules on

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extradition. The commander's disciplinary authority could be established through a special agreement of the Partner States.

I. FACTUAL BACKGROUND: THE ISS AND ITS LEGACY

A) The ISS as the first multinational space endeavor

The International Space Station (ISS) is the first truly multinational endeavor conducted in outer space. It is made possible through the close cooperation of the USA, Russia, Japan, Canada, and the European Space Agency (ESA). At the same time, the use of the ISS is open to other States as well. The ISS serves as an orbital scientific laboratory, where a great variety of experiments and studies take place.¹

The ISS is regulated by the Inter-Governmental Agreement (IGA)², signed in 1998 by the United States, Russia, Canada, Japan, and twelve ESA Member States³. The objective of the 1998 IGA is "to establish a long-term international cooperative framework among the Partners, on the basis of genuine partnership, on the development, operation, and utilization of a permanently manned civil Space Station for peaceful purposes". The IGA also provides that "[t]he Space Station shall be developed, operated, and utilized in accordance with international law, including the Outer Space Treaty, the Rescue Agreement, the Liability Convention, and the Registration Convention" (Art. 2.1). The IGA is supplemented by a series of Memoranda of Understanding (MOUs) signed between NASA -as the leading space agency involved in the project- and each one of the other Cooperating Agencies.

B) The ISS legacy: the value of the IGA as a model for future international projects

In 2013, the Legal Subcommittee of COPUOS (LSC) initiated a new item in its agenda, entitled "Review of international mechanisms for cooperation in

¹ There is plenty of bibliography on the ISS. See for instance the excellent technical presentation on international cooperation, the ISS and the IGA that NASA made before the UNCOPUOS Legal Subcommittee in 2013, available at: <http://www.unoosa.org/pdf/pres/lsc2013/tech-02E.pdf> (last visited on 1 Dec. 2014).

² Agreement Among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station, done in Washington on 29 January 1998, in force since 27 March 2001.

³ The 1998 IGA superseded the original IGA that had been signed in 1988 by the USA, ESA, Japan and Canada. The main goal of the new IGA was to include the Russian Federation into the ISS partnership. In addition, a number of the original provisions were modified by the new IGA, in particular the criminal law provisions that will be discussed here. For full treatment of the original 1988 criminal rules and the reasons behind their replacement in 1998, see Sinha, Hans P., *Criminal Jurisdiction on the ISS*, 30 *Journal of Space Law* (Spring 2004), pp. 85-127.

the peaceful exploration and use of outer space". Within the framework of this new agenda item, a number of COPUOS Member States, as well as some international organizations having the status of permanent observers at COPUOS, have made presentations or have provided written information (or both) with regard to their mechanisms of international space cooperation during the LSC sessions of the years 2013 and 2014. The ISS has featured prominently in the presentations of Partners in the project. States and organizations that are Parties to the 1998 IGA have declared that this Agreement has proved to be an excellent legal instrument, and some of those Parties have even stated that it could serve as a model for future space endeavors having a multinational character and involving crew members of different nationalities.⁴

C) The ISS legacy: Private space stations and interplanetary human exploration

The successful operations conducted on board the ISS, combined with the advent of private human spaceflight, have inspired new situations concerning space undertakings. There are plans to construct private orbital space stations in Low Earth Orbit, while the old vision of advancing human space exploration of the Moon and other celestial bodies, most notably Mars, has been revived.

Private orbital space stations will be constructed and operated by private entities and will be used for both recreational purposes (space tourism) and scientific research. Such stations are expected to consist of one⁵ or more modules⁶, which could be leased separately to interested persons, including sovereign entities⁷.

At the same time, there are serious discussions about landing humans on the surface of Mars in the framework of a multinational mission. It should be noted that private companies have also announced their intention to send

⁴ E.g. statements made by the USA, Japan, Canada, ESA, and Spain (papers on file with the authors). See also official COPUOS LSC reports for 2013 (A/AC.105/1045, par. 161 et seq., particularly par. 170) and 2014 (A/AC.105/1067, par. 175 et seq.).

⁵ See e.g. <http://www.i-newswire.com/press-release/spacetek-signs-mou-with-excalibur-almaz> (last visited on 1 Dec. 2014) for the operation of the Salyut Space Station by Excalibur Almaz and SpaceTek.

⁶ E.g. the modules developed by Bigelow Aerospace <http://www.bigelowaerospace.com/ba330.php> (last visited on 1 Dec. 2014).

⁷ See e.g. <http://www.bigelowaerospace.com/opportunity-pricing.php> (last visited on 1 Dec. 2014) on the plans of Bigelow Aerospace to lease capacity on board its space stations to different States to develop their space capabilities. See also http://spectrum.ieee.org/tech-talk/aerospace/space-flight/private-space-habitat-to-blow-up-on-iss-next-year?utm_source=NSN+%23113+-+November+2014&utm_campaign=NSN-1&utm_medium=email (last visited on 1 Dec. 2014).

humans to Mars;⁸ however, the unprecedented nature of such endeavor, combined with the huge challenges and the resources needed,⁹ make such plans appear rather unrealistic.

II. LEGAL BACKGROUND

A) Criminal jurisdiction in international law

In order to better understand some aspects of criminal law, a brief review of the principles governing criminal jurisdiction in international law is needed. These principles enable a State to exercise jurisdiction over criminal offenses that may be linked with another State. They are mostly determined by national law, which often lacks uniformity. In addition, there are international conventions conferring jurisdiction on a number of States for certain cases.

The principles most applied are the following:¹⁰

- a) the territoriality principle: a State may exercise criminal jurisdiction over crimes committed in its territory. Closely connected to that principle is the quasi-territoriality principle, according to which a State may exercise criminal jurisdiction over crimes committed on board ships, aircraft or space objects bearing its nationality.¹¹
- b) the active nationality principle: jurisdiction over crimes committed abroad is conferred to the national State of the alleged offender.
- c) the passive nationality principle: the national State of the victim may assert criminal jurisdiction.
- d) the protective or security principle: a State may exercise jurisdiction over aliens for acts committed abroad, if these acts affect its security.
- e) the universality principle: every State can try particular offenses, because they are deemed especially offensive to the international community as a whole, e.g. crimes against humanity, war crimes.

Closely related with the exercise of criminal jurisdiction is extradition.¹² Extradition enables one State to hand over to another State a suspected or convicted criminal who has fled abroad. It is mostly regulated through

⁸ E.g. Mars One <http://www.mars-one.com/mission> (last visited on 1 Dec. 2014) and Space Exploration Technologies <http://www.extremetech.com/extreme/184640-spacex-says-it-will-put-humans-on-mars-by-2026-almost-10-years-ahead-of-nasa> (last visited on 1 Dec. 2014).

⁹ For a simplified enumeration of the challenges that such a mission entails, see e.g. Mann, Adam, *Why we can't send humans to Mars yet, and how we'll fix that*, posted on 31 May 2013, available at <http://www.wired.co.uk/news/archive/2013-05/31/getting-to-mars> (last visited on 1 Dec. 2014).

¹⁰ See details in: Brownlie, Ian *Principles of public international law*, 5th ed., Oxford 1998, p. 299 et seq.; Shaw, Malcolm *International Law*, 4th ed., Cambridge 1997, p. 579 et seq.

¹¹ Cheng, Bin, *Studies in international space law*, London 1997 p. 387.

¹² See details on extradition in: Hobe, Stephan / Kimminich, Otto *Einführung in das Völkerrecht*, 8. ed., Tübingen-Basel 2004, p. 91; Shaw (*supra* note 10), pp. 610-611.

bilateral treaties. Such treaties define specific crimes for which the extradition can be asked. However, extradition can be refused if political asylum is granted to the alleged offender.

Many treaties that incorporate multiple principles of criminal jurisdiction contain provisions in the sense that States parties in whose territory the alleged offenders are situated, have to either prosecute or extradite them. Furthermore, many such treaties provide the basis for extradition in case that a bilateral extradition treaty does not exist between the State parties concerned. Noteworthy is also the principle *aut dedere aut judicare*, which is incorporated in some international conventions,¹³ and according to which the State in whose territory the alleged offender is found has to either prosecute or extradite him/her.

B) Criminal jurisdiction and command authority in general space law

Art. VIII OST attributes to the State of registry the right to exercise jurisdiction and control over the space object. This enables the application of the so-called “quasi-territorial” jurisdiction, or “flag” jurisdiction on board. This is a legal fiction that originated in the Law of the Sea as a custom whereby ships bear the flag of the nation to which they belong. In time, this became a customary rule, and in the 20th century the rule was finally codified in the Law of the Sea Conventions. Flag confers on the ship the nationality of the concerned State, and to that purpose, each ship can bear only one flag¹⁴. The same rule exists in Air Law, which took from the Law of the Sea the notion of “national flag”, and thus the Chicago Convention imposed on States the obligation to register their aircraft and grant to each airplane one nationality¹⁵. Finally, national laws also include this type of jurisdiction. For instance, in the United States, the relevant rule is Title 18 Section 7 of the United States Code, which extends American federal jurisdiction to US-registered ships, aircraft, and space objects.¹⁶

¹³ E.g. the Convention for the Suppression of Unlawful Seizure of Aircraft, signed at the Hague on 16 Dec. 1970, in force since 14 Oct. 1971, and the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation, signed at Montreal on 23 Sept. 1971, in force since 26 Jan. 1973.

¹⁴ See Art. 6 of the UN Convention on the Law of the Sea (UNCLOS I), adopted in Geneva on 29 April 1958, in force on 30 September 1962; and Arts. 91.1 & 92.1 of UNCLOS II, adopted in Montego Bay (Jamaica) on 10 December 1982, in force on 16 November 1994.

¹⁵ See Arts. 17 and 18 of the Convention on International Civil Aviation (CICA), signed in Chicago on 7 December 1944, in force since 4 April 1947.

¹⁶ 18 U.S.C. Sec. 7, on the United States Special Maritime and Territorial Jurisdiction. Other countries have similar provisions establishing “quasi-territorial” criminal jurisdiction. For instance, in Spain the relevant rule (only for ships and aircraft) is Article 23.1 of the Organic Law on the Judicial Power (Law 6/85 of 1 July 1985), in Germany there is §4 of the German Criminal Code, in Greece there is Art. 5 of the Greek Criminal Code.

In Space Law, the registry of a space object has the same legal consequences as registering a ship or an aircraft. The only difference is that in Space Law, inclusion in the national registry does not confer nationality *de jure* to the spacecraft, only jurisdiction and control thereon. However, in practice such inclusion entitles the State of registry to exercise its sovereignty over the registered object. This amounts to a quasi-nationality or nationality *de facto* of the space object.¹⁷

In brief, every satellite, capsule, or any other spacecraft that is registered by a State will be subject to the laws of that State of registry. Likewise, a manned orbital station, or a station placed on the surface of the Moon or another celestial body, will be governed by the jurisdiction of the State that registered such object or objects.

The general jurisdictional rule of Art. VIII OST includes criminal issues. Consequently, the criminal law of the State of registry will normally apply to occurrences aboard a space object. It has been accepted that the State of registry has primary, but not exclusive, jurisdiction,¹⁸ which means that the exercise of criminal jurisdiction may be based on other principles too. The same basic principle, i.e. the quasi-territorial criminal jurisdiction of the State of registry, will also apply aboard the commercial manned suborbital vehicles that in a few years will be used for space tourism and other purposes in the US and elsewhere.¹⁹

A corollary of the jurisdiction of the State of registry is the disciplinary authority of the space object commander. The commander is accepted as the representative of the State of registry, to whom that State's jurisdiction has been delegated.²⁰ Although the exact content of the command authority is not defined in the UN Outer Space Treaties, it can be identified by reference to US and Russian domestic space law, which in turn have been influenced by public international law applicable to ships and aircraft.

As to US law, 14 CFR 1214.7 established the authority of the Space Shuttle commander to enforce order and discipline during all flight phases of a Shuttle flight and to take whatever action in his/her judgment was necessary for the protection and safety of all persons and equipment on board. The commander had authority throughout the flight to use any reasonable and

¹⁷ See Schmidt-Tedd, Bernhard /Stephan Mick in: Cologne Commentary on Space Law Vol. I/Article VIII OST, Cologne, 2009, pp. 146-168.

¹⁸ Gorove, Steven *Criminal jurisdiction in Outer Space*, 6 Int'l Lawyer (1972), p. 313 (316-317); Jenks, Wilfred C. *Space Law*, London 1965, p. 294.

¹⁹ See Chatzipanagiotis, M. *Criminal and disciplinary issues pertaining to suborbital space tourism flights*, 2007 Proceedings of the 50th Colloquium on the Law of Outer Space, pp. 215-225; Chatzipanagiotis, M. *The legal status of space tourists in the framework of suborbital flights*, Cologne 2011, pp. 40-54

²⁰ Jenks (*supra* note 18), p. 238; Sloup, George Paul *Legal regime of international space flights: Criminal jurisdiction and command authority aboard the Space Shuttle/Spacelab* in: Gorove, Steven (ed.) *The Space Shuttle and the Law*, 1980, p. 77 (86).

necessary means, including the use of physical force, to achieve this end. He/she could also subject any of the persons on board to such restraint as the circumstances require until such time as delivery of this person to the proper authorities is possible.²¹ Everybody on board was obliged to conform to the commander's orders and directions.²²

Art. 20 (3) of the Russian Law on Space Activity makes the spacecraft commander responsible for the safety of the space object and all persons and property on board. The commander is vested with all necessary powers to conduct the flight and command over the persons on board.

C) Criminal jurisdiction and command authority as to the ISS

As to criminal and disciplinary matters of operations on board the ISS, there are special provisions in the Intergovernmental Agreement and the ISS Crew Code of Conduct (CCOC).

The IGA states in its Article 5 that each one of the Partner States will register as space objects those flight elements (modules and other main components) that it contributed to the Station, and thus will retain jurisdiction and control over said elements, as well as over all personnel in the ISS who are its nationals. This means that according to the IGA, the basic rule is the quasi-territorial jurisdiction that is effective in Space Law in general; and that this principle is supplemented for criminal purposes with the active nationality principle, as we will see below. The Partner States may exercise one or another jurisdiction as appropriate.

The CCOC governs the behavior of astronauts aboard the ISS and stems from the necessity to subject these persons to certain rules, including respect of hierarchy and commands given. The main objective of the CCOC is to provide for a course of action leading to the imposition of sanctions in case of encroachment of the rules contained therein.²³

1. Criminal jurisdiction

Criminal jurisdiction on board the ISS is regulated in Art. 22 IGA. Contrary to Art. VIII OST, the main principle endorsed in the IGA for criminal matters is the active nationality principle. According to Art. 22.1, each Partner State can exercise criminal jurisdiction in any flight element of the ISS over alleged offenders who are its nationals.²⁴

There are several reasons that explain why this approach was adopted.

The first one has its roots in sovereign immunity, according to which a State and its representatives cannot be tried by another State. Sovereign immunity

²¹ § 1214.702, 45 FR 14845, 7 March 1980, as amended at 56 FR 27900, 18 June 1991.

²² § 1214.704, 45 FR 14845, 7 March, 1980, as amended at 56 FR 27900, 18 June, 1991.

²³ Farand, André *Astronauts' behaviour on board the International Space Station: regulatory framework* in: UNESCO *Legal and ethical framework for astronauts in space sojourns, Conference Proceedings*, Paris 2004, p. 70 (71-72).

²⁴ Art. 22 (1) IGA.

is derived from the principle of equality of States²⁵. It applies not only to Heads of States and members of the government, but also to other persons who represent their national State, such as ambassadors, consuls and military personnel. In the same vein, professional astronauts (as opposed to 'space tourists'), who are State employees, can be regarded as representatives of their national States.

Closely related to sovereign immunity is international courtesy. Obviously, no State would like to see its astronauts (who are duly considered as heroes in their respective countries) subject to a criminal trial by another State, let alone to have them sentenced to a grave penalty (which, in some of the ISS Partner States like Russia or the US, could even be capital punishment). Therefore, and taking into account the sensitivity of all Partner States, the solution was negotiated that in case an offense is committed on board the ISS, the State of nationality of the alleged offenders will have priority for prosecuting them.

The third reason lies in the fact that the European Partner States work together in ESA. Even though it is not a State but an international organization, ESA owns and has registered the *Columbus* module and several other flight elements.²⁶ Adopting the (quasi) territoriality principle would result in jurisdictional chaos if a crime were to be committed on board any of the European flight elements, because it would be impossible to determine which national law of the ESA Member States should apply in the particular case.

A fourth reason is also technical in nature. The aim was to prevent arbitrary results that would derive from applying quasi-territorial jurisdiction to criminal actions, based on where people were located at the time of commission of the offense; such results might not help the solution of the case, and indeed might even be counterproductive.

It is well known that ISS crewmembers move freely all over the Station and make use of all habitable modules, regardless of the State that has registered them. In this context, the location of an alleged offense could be entirely fortuitous. Think of two astronauts, who are nationals of State B, starting a fight and injuring each other in the module of State C. It seems more logical that State B, not State C, would become responsible for the ensuing criminal proceedings.

Furthermore, we can envision the commission of an offense in more than one single module at once. Let us suppose that an astronaut located in the module of State B shoots a weapon²⁷ and injures another astronaut located in the module of State C: On which territory did the offense actually take place? In

²⁵ Art. 2 (1) of the UN Charter.

²⁶ De Roos, T.A. *Disciplinary and Criminal Law in Space* in: von der Dunk, Frans G. / Brus M.M.T.A. *The International Space Station*, Leiden / Boston 2006, p. 115 (121).

²⁷ As for the actual chances of finding fire weapons on the ISS, see: <http://spectrum.ieee.org/tech-talk/aerospace/space-flight/how-i-stop-cosmonauts-carrying-guns> (last visited on 1 Dec. 2014).

order to eliminate all these practical problems, the territoriality principle was again excluded, and instead the active nationality principle was adopted as the basic rule for criminal matters on the ISS.

Art 22.2 IGA lays down the passive personality and the quasi-territorial principle as secondary jurisdictional principles. A Partner State may exercise criminal jurisdiction, if the crime has affected the life or safety of one of its nationals, or it has caused damage to its flight element or has occurred thereon.²⁸ Thus, national interests are also taken into account.²⁹ Nevertheless, such jurisdiction can only be claimed, under two conditions: first, consultations with the national State of the alleged offender have been made; second, the latter, within 90 days from the date of consultations or any other agreed period, has either concurred with the exercise of jurisdiction by the other State or has failed to provide assurances that the case will be submitted to its criminal authorities.³⁰

The latter condition is a very diplomatic and subtle form of the principle *aut dedere aut judicare*, in line with the highly cooperative nature of the ISS undertaking. The principle *aut dedere aut judicare* was developed in the 1960s, an era of high political tensions, mainly as a response to terrorist attacks against aircraft and aviation installations, to prevent alleged offenders from escaping trial by resorting to States that for whatever reason were uninterested in prosecuting them. Thus, it was developed to meet regulatory necessities arising in a totally different operational and political context. As a result, this principle in its basic form would be unsuitable for the ISS, the success of which has been based on mutual trust and cooperation among Partner States. It has also to be considered that the alleged offenders in this case will not be suspected terrorists but highly trained professional astronauts, selected through vigorous proceedings that include psychological and behavioral tests.

In any case, and for the purposes of extradition of any alleged offender, the IGA may provide the necessary legal basis, if an extradition treaty has not been signed between the States concerned.³¹

Moreover, mutual assistance between the affected Partner States is required (Art. 22.4 IGA). The latter clause is particularly relevant for purposes of enabling the investigation of an offense, such as delivering the evidence (if any) of the crime to the State that, according to Art. 22, will be exerting its jurisdiction over the case.

The aforementioned provisions, however, are only valid for nationals of the Partner States of the IGA. Nationals of third States on board the ISS are subject to the general jurisdictional rules of Art. VIII OST. Thus, if nationals of a third country commit a crime on board the ISS, they will be subject to

²⁸ Art. 22 (2) (1) IGA.

²⁹ De Roos (*supra* note 26), p. 121.

³⁰ Art. 22 (2) (2) IGA.

³¹ Art. 22 (3) IGA.

the jurisdiction of the State having registered the flight element where the crime was committed.³²

The evaluation of the preceding Art. 22 by the legal authors is generally positive, because its provisions managed to achieve a good balance between all the national interests that conflicted during the negotiation of the IGA. One author has even stated that Art. 22 represents ‘a giant leap for mankind’, in terms of opening the way to the presence of a criminal jurisdiction in outer space.³³

2. Authority of the commander

The authority of the ISS commander is laid down in the ISS Crew Code of Conduct (CCOC)³⁴. The CCOC is applicable to all persons on board the ISS regardless their formal status.³⁵ Part III lit.A CCOC regulates the authority and responsibilities of the ISS commander.

The commander is responsible on board the ISS for the safety and well-being of all persons and for maintaining good order and discipline. She/he has the ultimate authority on board the ISS and has the right to use any reasonable and necessary means to fulfil his/her duties. The right to use proportionate force or restraint a person must be assumed in this regard although not explicitly mentioned, for it is justified by the need to ensure the immediate safety of the crew members and the ISS itself.³⁶

Furthermore, the ISS commander has to promote a harmonious and cohesive relationship among the ISS crewmembers as well as to assure an appropriate level of mutual confidence and respect that takes into consideration the

³² De Roos (*supra* note 26), pp. 122-123; Farand, (*supra* note 23), p. 77.

³³ Sinha (*supra* note 3), pp. 87, 104, and 127. At 120, Sinha also states that “(its) clarity, as well as (its) equitable substance, lends Art. 22 of the 1998 IGA to adoption in future criminal space jurisdiction contexts”.

By contrast, a negative opinion (perhaps the only one to be found) is given by Hermida, Julian, *Crimes in Space – A Legal and Criminological Approach to Criminal Acts in Outer Space*, XXXI Annals of Air and Space Law (2006), pp. 421-2, alleging that Art. 22 of the IGA failed to adopt a more comprehensive and empirical criminological approach. This criticism is most likely unfounded, as the IGA was obviously not the right place to undertake a study on space criminology. Its goal was to solve a series of practical problems that could be faced by the ISS Partner States, and this the IGA has done flawlessly.

³⁴ The CCOC was called for by Art. 11 of the IGA. It was developed by NASA in collaboration with all the other Partner States and adopted in September 2000. It provides, among other things, the parameters of the command authority on board the ISS. Its rules have an administrative (not a criminal) nature. Nevertheless, the CCOC expressly states that its rules shall not limit the application of the criminal provisions of Art. 22 of the IGA. The CCOC is rather a complement to such rules.

³⁵ According to the definitions of the CCOC “ISS crewmembers means any person approved for flight to the ISS, including both ISS expedition crew and visiting crew, beginning upon assignment to the crew for a specific and ending upon completion of the post flight activities related to the mission”.

³⁶ De Roos (*supra* note 26), p. 119; Farand (*supra* note 23), p. 75.

international and multicultural elements of the ISS missions. The main idea behind this provision was to deal with interpersonal or group harassment. Nevertheless, disagreements among the partner States on the exact definition of harassment led to this wording,³⁷ which has been criticized for lack of functionality.³⁸

It has also to be underlined that the ISS Commander is entitled to change the scheduled routine activities of the other crewmembers, in order to cope with contingencies and safety problems.³⁹ This provision allows for flexibility on board to meet unexpected circumstances related to the safety of the crew and the ISS, and highlights the Commander's responsibility in this regard.

III. CHALLENGES REGARDING PRIVATE SPACE STATIONS

Private space stations are expected to have more than one module, yet be operated by a single private entity. The operation of the private space station will require authorization and supervision by the appropriate State, according to Art. VI OST, which will be most probably the State of registry. At the same time, private orbital stations are expected to be operated either as space hotels for wealthy individuals (space tourism) or as orbital scientific laboratories.

A) Space tourism

From a jurisdictional point of view, space tourism will be quite straightforward. Since a single entity will be responsible for the station and the occupants will be staying on board the station for a short period, the traditional rule of Art. VIII OST will apply. This means that criminal jurisdiction will rest primarily with the State of registry.

Other jurisdictional grounds, such as the active or passive nationality principle, would not be excluded. However, the situation surrounding the occupants will not be as sensitive as aboard the ISS, where professional astronauts representing partner States stay for a long time in orbit. Political balances on board private space stations will be far less important compared to the ISS. Therefore, the ISS particularities that led to the creation of a special jurisdictional regime will not be relevant to private space stations used for recreational purposes.

On the contrary, the frequent change of occupants combined with the need of continuous monitoring of the station's operations underline the need to attribute criminal jurisdiction to a single State, the State of registry.

As a result, for recreational orbital stations, the traditional jurisdictional rules laid down in Art. VIII OST would be best fit.

As to extradition, existing bilateral treaties could be used. Since orbital staying for recreational purposes will be a private endeavor from both the

³⁷ Farand (*supra* note 23), p. 74.

³⁸ De Roos (*supra* note 26), p. 119.

³⁹ Section III.C of the ISS CCOC.

supply and the demand side, no special agreements are necessary. From a jurisdictional perspective, the situation of orbital hotels will be comparable to that of hotels on Earth, which accept guests from all over the world.

As to maintaining public order on board private space stations, it is the operator, represented by the commander and by mission control, who would be responsible in the first place for maintaining disciplinary authority on board. However, the State of registry would also be ultimately competent to guarantee the safety of the space station, in accordance with Arts. VI and VII of the OST, as well as security on board, in accordance with Art. VIII OST. The State of registry should also vest the station's commander with disciplinary authority for incidents on board.

B) Private laboratories in orbit

To some extent, the same situation will apply to private space stations used as orbital laboratories for scientific purposes.

However, sovereign entities are likely to be involved in the utilization of capacity on board such stations, which may bring about the need for *ad hoc* jurisdictional agreements. If a State undertakes to send one or more persons to the private space station, in order to receive astronaut training or conduct scientific experiments, then it may be useful for the State of registry to sign special jurisdictional agreements with the national State of such persons, to avoid jurisdictional conflicts. Such agreements could foresee that the State of registry will refrain from exercising its jurisdiction over alleged misconduct, as long as the overall safety and the integrity of the station have not been seriously jeopardized. In such case, the national State of the alleged offender may have a greater interest than the State of registry to exercise its jurisdiction. Furthermore, special extradition agreements would be very useful in this regard, as they could ease potential tension between the States involved.

Consequently, private orbital space stations used for scientific purposes could be subject to a jurisdictional regime similar to that of the ISS.

IV. CHALLENGES REGARDING INTERPLANETARY HUMAN EXPLORATION

Human interplanetary exploration will be the most challenging space mission ever undertaken, also from a jurisdictional point of view.

The exploration vehicle envisaged at present, the Orion capsule, will consist of a single module. However, long-term human presence in space requires a much more spacious vehicle, mainly to cope with astronaut health and behavioral issues. Therefore, it cannot be excluded that a larger exploration vehicle, comprised of more modules, will be constructed in orbit, before the journey to Mars or another celestial body begins. In addition, the undertaking will be so demanding that it will require international cooperation,⁴⁰ thus comprising a

⁴⁰ National Research Council, *Pathways to Exploration: Rationales and Approaches for a U.S. Program of Human Space Exploration*. Washington, DC: The National

multinational crew. At the same time, different modules are expected to be used to construct a habitat on Mars and provide the necessary supplies and infrastructure to support human presence on the Martian surface.

Consequently, the paradigm of the ISS should be followed as to criminal jurisdiction, because from a regulatory point of view, the situation is analogous to the ISS. The ISS IGA has provided an excellent solution to problems of concurrent jurisdictions, based on international consensus. It takes into account national sensitivities, while allowing for flexibility in the particular case through ad hoc consultations on the exercise of jurisdiction and extradition. Hence, the active nationality principle should be given primacy, without excluding other jurisdictional bases. Attributing secondary importance to the principle of quasi-territoriality in favor of the active nationality entails an additional jurisdictional advantage: the active nationality would be applicable also on the surface of Mars (or other celestial bodies) during extra-vehicular activities or activities outside the constructed bases. Thus, there will be regulatory uniformity covering all stages of the manned mission.

Concerning extradition, it would be useful to include a special provision foreseeing the variation of the principle *aut dedere aut judicare* as adopted in the ISS IGA. This would help ease tension and decrease jurisdictional conflicts. Any alleged criminal misconduct and the related jurisdictional issues are to be resolved through good-faith negotiations, to safeguard trust among the partner States.

Additionally, a Crew Code of Conduct similar to the one adopted for the ISS would provide the rules necessary to safeguard the harmonious relationship among the crew members. Following the example of the ISS provisions, command authority will play a significant role in this regard. In fact, since external help or intervention will be possible to a very limited extent owing to the distance of the vehicle from the Earth, and the crew will have to tackle any problems that might arise mainly by themselves, it may be necessary on the one hand to have more detailed provisions in place, but on the other hand to ensure flexibility in decision-making on board so as to deal effectively with unexpected issues. The exact regulatory requirements, however, could only be specified once the exact mission profile has been identified.

Conclusion

States Parties to the IGA and legal authors seem to agree that the IGA is an excellent piece of legislation that can serve as a model for future space exploration projects involving multinational crews. In particular, the rules on criminal jurisdiction incorporated in Art. 22 of the IGA have an enormous value and have set a very useful precedent for future manned space projects,

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including interplanetary human exploration projects, which will be sponsored by several States.

In the case of private space stations, which will most likely be registered as space objects by one single State, the appropriate solution will depend on their use. If they are used by individuals as private orbital hotels, then the political and technical rationale underlying the adoption of the IGA rules on criminal jurisdiction does not exist. In such cases, it would be preferable to revert to the basic rule of quasi-territorial jurisdiction provided for by Art. VIII of the OST. Yet if the orbital station is used by sovereign entities, special jurisdiction agreements with the state of registry would be useful, in order to safeguard political balances.