ЕУРАЗИЯ ҰЛТТЫҚ УНИВЕРСИТЕТІ

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
ТҰҢҒЫШ ПРЕЗИДЕНТІ - ЕЛБАСЫНЫҢ ҚОРЫ

# «ҒЫЛЫМ ЖӘНЕ БІЛІМ – 2017»

студенттер мен жас ғалымдардың
XII Халықаралық ғылыми конференциясының
БАЯНДАМАЛАР ЖИНАҒЫ

---

СБОРНИК МАТЕРИАЛОВ
XII Международной научной конференции
студентов и молодых ученых
**«НАУКА И ОБРАЗОВАНИЕ – 2017»**

---

PROCEEDINGS
of the XII International Scientific Conference
for students and young scholars
**«SCIENCE AND EDUCATION - 2017»**

14th April 2017, Astana

**ҚАЗАҚСТАН РЕСПУБЛИКАСЫ БІЛІМ ЖӘНЕ ҒЫЛЫМ МИНИСТРЛІГІ**
**Л.Н. ГУМИЛЕВ АТЫНДАҒЫ ЕУРАЗИЯ ҰЛТТЫҚ УНИВЕРСИТЕТІ**

# «Ғылым және білім - 2017»
# студенттер мен жас ғалымдардың
# XII Халықаралық ғылыми конференциясының
# БАЯНДАМАЛАР ЖИНАҒЫ

# СБОРНИК МАТЕРИАЛОВ
# XII Международной научной конференции
# студентов и молодых ученых
# «Наука и образование - 2017»

# PROCEEDINGS
# of the XII International Scientific Conference
# for students and young scholars
# «Science and education - 2017»

**2017 жыл 14 сәуір**

**Астана**

**УДК 378**

**ББК 74.58**
**Ғ 96**

Ғ 96
«Ғылым және білім – 2017» студенттер мен жас ғалымдардың XII Халықаралық ғылыми конференциясы = The XII International Scientific Conference for students and young scholars «Science and education - 2017» = XII Международная научная конференция студентов и молодых ученых «Наука и образование - 2017». – Астана: http://www.enu.kz/ru/nauka/nauka-i-obrazovanie/, 2017. – 7466 стр. (қазақша, орысша, ағылшынша).

ISBN 978-9965-31-827-6

Жинаққа студенттердің, магистранттардың, докоранттардың және жас ғалымдардың жаратылыстану-техникалық және гуманитарлық ғылымдардың өзекті мәселелері бойынша баяндамалары енгізілген.

The proceedings are the papers of students, undergraduates, doctoral students and young researchers on topical issues of natural and technical sciences and humanities.

В сборник вошли доклады студентов, магистрантов, докторантов и молодых ученых по актуальным вопросам естественно-технических и гуманитарных наук.

УДК 378

ББК 74.58

ISBN 978-9965-31-827-6

the Zero-Gravity Instrument Project in the framework of the Human Space Technology Initiative of the United Nations Programme on Space Applications. As part of the project, the Office promotes space education and research in microgravity, particularly for the enhancement of relevant capacity-building activities in developing countries. The project will provide opportunities for students and researchers to study gravitational effects on samples, such as plant seeds and small organisms, in a simulated microgravity condition, with hands-on learning in the classroom or research activities conducted by each institution. It is also expected that a data set of experimental results in gravity responses will be developed and will contribute to the design of future space experiments and to the advancement of microgravity research.

The use of the space environment to uncover hidden potential in crops, commonly described as space breeding, was a focus of a project undertaken by the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture. Approximately 10 kg of rice of the Pokkali variety were sent into space in 2006 for the Division by a Chinese spacecraft to observe heritable alterations in the genetic blueprint of these seeds and planting materials induced by the effects of cosmic rays, microgravity and magnetic fields in space. Upon return to Earth, the seeds were planted in the greenhouse at the FAO/IAEA Agriculture and Biotechnology Laboratory in Seibersdorf, Austria, with the objective of evaluating progeny for desirable traits such as resistance to stress and improved quality. [2]

Induced mutation in general is a tool for the plant breeder to access sought-after heritable variations for developing new crop varieties. So far, there has been no proof that mutations induced in space would differ from those induced using physical mutagens in controlled settings. While the plants did not grow well at Seibersdorf and there were no results to report from this one experiment, the Division supported two research contracts as a follow-up. The overall conclusion from those experiments was that “space environment mutagenesis has widespread use potential in crop mutation breeding”. FAO encourages the application of the best scientific and technological tools in addressing the scourge of food insecurity, and expresses its hope that work relating to space-induced mutation will contribute to the advancement of the science of plant breeding and genetics.

**References:**

1. General Assembly resolution 67/288, annex
2. The official web-site of the FAO / URL: www.fao.org/fishery/gisfish/index.jsp
3. The special report entitled “Space benefits for Africa: contribution of the United Nations system” (A/AC.105/941) / URL: http://www.unoosa.org/

УДК 341.215.

## LIABILITY FOR DAMAGE CAUSED BY SPACE OBJECTS

**Sarvinoz Salomzoda**
Sarvinoz.saomzoda@mail.ru
Second year student, group MPR-22, ENU name L.N Gumilyov, Astana, Kazakhstan,
scientific director - M.Kulikpaeva

Due to exploration of space environment, which do consists of outer space, moon, celestial bodies the risk of damage can be resulted to cause some harm to people and property of them. International law has focused on the norms which permit payment of some amount of money for damage caused by space objects and their parts. Payload is the money compensation for harm which was caused by punching country space objects as liability for activity they do.

The Liability Convention of 1972 expands upon the principles of liability for damage caused by space objects introduced in Article VII of the Outer Space Treaty of 1967. There are two scenarios where damage could be caused by a space object. The first scenario envisions a space object that causes damage to the surface of the Earth or an aircraft in flight, and the second scenario

deals with an event where a space object causes damage someplace other than the surface of the Earth, i.e. a space object, outer space, or another celestial body.

Each scenario of the Liability Convention has a different standard of liability. The first scenario applies a strict liability standard whereby a state is considered strictly liable for any damage caused by a space object launched even in the face of circumstances that are outside a its control. Under this standard, if more than one state is responsible for the launch of the space object in question then that state will be held joint and severally liable for any damage caused.

The standard of liability applied under the second scenario is a more arduous one in that it applies a fault liability standard whereby a state will be considered liable only if it can be shown that the damage caused was due to the fault of the state or states responsible for the launch of the space object as the case may be. To date, there have been no instances where the second scenario of the Liability Convention have been applied.

The base for space law is the outer space treaty 1967. In 2015 by more than 100 states including all space faring nations of course, had been ratified outer space treaty. According to 1967 OST non-governmental entities in equal initiation with governmental one can be involved in space activity. Recognizing extremely dangerous nature of space activity OST imposes liability and burden to every punching state and private entities. State parties whether natural or juridical persons are liable to other states for any damage caused by space objects if the state is Launching state which can be described by:

(i) The State that launches an object

(ii) The State that procures the launch of an object

(iii) The State from whose territory and object is launched

(iv) The State from whose facility an object is launched

The Outer Space Treaty established a series of broad principles that have been elaborated upon and implemented in a series of subsequent international treaties and national laws. These principles include:

- The exploration and use of outer space shall be carried on for the benefit and in the interests of all mankind;
- Outer space and celestial bodies are free for exploration and use by all States;
- Outer space and celestial bodies are not subject to national appropriation;
- No Weapons of Mass Destruction are permitted in outer space;
- The Moon and other celestial bodies shall be used exclusively for peaceful purposes;
- States shall be responsible for their national activities in outer space, whether carried on by governmental or non-governmental entities;
- The activities of non-governmental entities in outer space shall require the authorization and continuing supervision by the appropriate State;
- States shall retain jurisdiction and control over their space objects and any personnel thereon;
- States shall be liable for damage caused by their space objects; and
- States shall avoid the harmful contamination of outer space.

In summary, the OST lays the foundations for a liability regime that makes launching States liable for damage done by governmental or non-governmental entities to other State Parties, their governmental or non-governmental entities.

The Liability Convention 1972

Liability principle from OST 1967 though being important due to nowadays technology was elaborated as Liability Convention 1972. In 2015 liability convention has been ratified by more 90 states including all space-faring nations. some of its key features are:

- Joint and several liability of launching States (Article V)

- Absolute liability for damage caused by a space object on the surface of the Earth or to aircraft in flight (Article II)

- Fault based liability for damage caused by a space object in outer space (Article III)

- Unlimited liability on the basis of restitutio in integrum (Article XII)

- The possibility for claims to be presented by natural or juridical persons who suffer damage through their State of nationality or permanent residence (Article VIII)

In conclusion all states which ratified the treaties mentioned above have unlimited amount of liability for damages caused by space objects whether the state is launching state or from which territory flight occur. Moreover they are liable for activity of private non-governmental companies too. Customary law is there for some state which did not ratified treaties on liability for damages caused by space objects.

**List of used sources:**


- Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies- 1967
- Convention on International liability for damage caused by space objects 1972
- Article Paul San Dempsey-Liability caused by space objects under international law and national law


УДК 341.215.2

## *MOON RESEARCH:THE FIRST MAN LANDING ON THE MOON*


**Shoimardonov Anushervon**

anushbekov97@gmail.com

Second year student , group MPR-22, ENU name L.N Gumilyov, Astana, Kazakhstan, scientific director - M.Kulikpaeva


The first men who land on the moon were Neil Armstrong and the pilot Edwin Aldrin. For centuries, people dreamed of visiting the Moon. These dreams became a reality in the second half of the 20th century. On July 20, 1969 history was made when men walked on the Moon for the very first time. The result of almost a decade's worth of preparation, billions of dollars of investment, strenuous technical development and endless training, the Moon Landing was the high point of the Space Age and the single greatest accomplishment ever made. Armstrong was a quiet self-described nerdy engineer who became a global hero when as a steely-nerved pilot he made "one giant leap for mankind" with a small step on to the moon. The commander Neil Armstrong and the Pilot Edwin Aldrin planted the lunar module. In the southwestern of the sea of Tranquility. They stayed on the moon about 21 hours all this time the pilot of the command module Michael Collins , First the US and the USSR sent unmanned spacecraft t o the moon to photograph its surface and help determine the best sites for landings. Meanwhile, manned spacecraft were being launched into orbits around the Earth, to give people a chance to test equipment and to study the effects of space travel on the human body was waiting for them in the near moon orbit. First thing which did Neil Armstrong , he put the national symbol of USA , their flag, Neil put US flag on the moon land , and in that time it had a great meaning because of rivalry between US of America and USSR , how we know firstly USSR discovered Space and when US spacecraft landed first time in the human history it does meaned that America discovered Moon. Armstrong commanded the Apollo 11 spacecraft that landed on the moon , capping the most daring of the 20th century's scientific expeditions. His first words after setting foot on the surface are etched in history books and the memories of those who heard them in a live broadcast , Armstrong said :That's one small step for man, one giant leap for mankind. Armstrong and Edwin "Buzz" Aldrin spent nearly three hours walking on the lunar surface, collecting samples, conducting experiments and taking photographs .Mission planners at NASA studied the lunar surface for two years, searching for the best place to make the historic landing and it was very difficult. Using high-resolution photographs taken by the Lunar Orbiter satellite and close-up photographs taken by the Surveyor spacecraft before the landing spacecraft on the moon was done a decade of hard work, they narrowed the initial thirty sites down to three. Influencing factors included the number of craters and boulders, few high cliffs or hills, and a