

## MEMORIAL

<https://doi.org/10.18524/1810-4215.2024.37.316659>

## GAMOW CONFERENCE IN WASHINGTON UNIVERSITY AND 30-TH ANNIVERSARY OF GAMOW'S CONFERENCE IN ODESA UNIVERSITY

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**ABSTRACT.** George Gamow, the eminent physicist and astrophysicist was born in Odesa in 1904. He was educated at the Odesa University (1922–23) and at the University of Leningrad (1923–1929).

He started at Odesa University and during the period of his studies worked at the Astronomical observatory of the University. Later, after he created the theory of alpha decay (1928), he joined the first ranks of leading physicists and took part in the conferences of Niels Bohr. The outbreak of World War II in Europe made their implementation impossible. The Gamow's conferences at the University of Washington were held between 1935 and 1947. Ten conferences were held during this period. Gamow's conferences at Odesa University began in the year of its 90th anniversary in 1994. From the beginning, they were held once every five years. However, due to their popularity (since 2000), conferences have become annual. In 2024 the Gamow's conferences in Odesa will celebrate. This year, the 24th annual Gamow's conference, dedicated to the 120th anniversary of the birth of George Gamow, successfully held its work. Even during the COVID epidemic and wartime, Gamow's conferences continued, switching to an online mode of operation.

**Keywords:** Gamow, Gamow's Conferences, history of astronomy.

**АНОТАЦІЯ.** 120 років тому, у 1904 році, в Одесі народився видатний фізик та астрофізик Георгій Гамов. Він навчався в Одеському університеті та в період навчання працював обчислювачем в астрономічній обсерваторії університету. Надалі, після створення ним теорії альфа розпаду (1928 рік) він опинився у перших рядах провідних фізиків і брав участь у конференціях Нільса Бора. Початок Другої світової війни в Європі унеможливив їх подальше проведення. Після переїзду до США та роботи у Вашингтонському університеті Георгію Гамову вдалося організувати продовження конференцій з теоретичної фізики, що проводились раніше Нільсом Бором у Копенгагені. Загалом у період із 1935 по 1947 рік було проведено десять конференцій. У 2024 році відзначається 30 років від часу проведення Гамовських конференцій в Одесі. Гамовські конференції в Одеському університеті розпочалися на рік 90-річчя Г. Гамова в 1994 році. Спочатку вони проводилися один раз на п'ять років. Однак, у зв'язку з їхньою популярністю, починаючи з 2000 року, конференції стали щорічними. Цього року успішно провела свою роботу 24-а Міжнародна Гамовська

конференція, присвячена 120-річчю від дня народження Георгія Гамова. Навіть у періоди епідемії Ковіду та воєнного часу гамовські конференції продовжувались, перейшовши на он-лайн режим роботи.

**Ключові слова:** Гамов, Гамовські конференції, історія астрономії.

**2024 is the year of the 120th anniversary of the birth of George Gamow.** George Gamow was one of the most influential physicists and cosmologists of the 20th century. He made significant and decisive contributions to modern physics, cosmology, and biology. His three most notable contributions include:

1. Discovery of the quantum nature of alpha decay in nuclear physics (1928).
2. Proposal of the Hot Universe theory (1946-1953).
3. Deciphering the genetic code in biology (1954).

George Gamow was born in Odesa on March 4, 1904. He completed his secondary education there and was a student at the Odesa (Novorossiysk) University for two years. Gamow studied at Odesa University from 1921 to 1922. At the same time he worked as an evaluator at the astronomical observatory. In his book "*My World Line*", Gamow outlined his journey in science, which began in Odesa. His academic pursuits and the start of his scientific career continued in Leningrad. Later, his work and travels took him across Europe, including to world-renowned centers of theoretical physics such as Copenhagen and Cambridge. A significant part of his "world line" took place in the United States, where he arrived in 1934 and stayed there the end of his life.

**Gamow Conferences in George Washington University.** When George Gamow was offered a position at George Washington University in 1934, he set one condition for accepting the offer: the establishment of an annual physics conference at the university, co-sponsored by the Carnegie Institution. At that time, Foggy Bottom, the Washington neighborhood where GWU is located, was not particularly known for physics. However, Gamow aimed to bring the "spirit of Copenhagen" to this location and to attract an international group of theorists. The Washington Conference on Theoretical Physics was first held in 1935 and then annually until 1947. After the tenth meeting in 1947, Gamow's focus shifted from nuclear physics to cosmology, and he began working more closely with graduate students and local collaborators. As a result of diminished interest, the conference was no longer held.



Figure 1: Participants conference organized by Gamow (1937, the 3-rd Conference)



Figure 2: Participants Gamow's conference (1947, 10-rd Conference)

Topics of the Gamow Conferences:

- 1935: First Washington Conference on Theoretical Physics: Nuclear Physics.
- 1936: Second – Molecular Physics.
- 1937: Third – Problems of Elementary Particles and Nuclear Physics.
- 1938: Fourth: Stellar Energy and Nuclear Processes.
- 1939: Fifth – Low Temperature Physics and Superconductivity.
- 1940: Sixth – Geophysics and the Interior of the Earth.

- 1941: Seventh – Elementary Particles.
- 1946: Ninth – Physics of Living Matter.
- 1947: Tenth – Gravitation and Electromagnetism.

Attached are photographs (Fig. 1-2) of participants in the Gamow Conferences at the University of Washington in 1937 (3rd Conference) and the 1947 Conference (10th Conference, Halpern, 2010). Detailed information about all Gamow conferences at the University of Washington is available on the website: Washington Conferences on Theoretical Physics (<https://www.britannica.com/topic/Washington-Conference-on-Theoretical-Physics>).



Figure 3: Participants Odesa Gamow's conference (2004)



6th Gamow International Conference in Odessa  
 "New Trends in Cosmology, Astrophysics and HEP after Gamow"  
 11 – 19 August, 2019, Odessa, Ukraine

Figure 4: Participants of the Odesa Gamow's conference (2019)

**Gamow's Conferences in Odesa University.** This year marks the 7th Gamow Memorial Conference in Odesa, following those held in 1994, 1999, 2004, 2009, 2014, and 2019. These conferences are held every five years. Since 2000, annual Gamow's conferences have also been held. In 2024, this will be the 24th Gamow's conference. Our goal is to bring together experts in

modern astrophysics, cosmology, high-energy physics, and biology, along with enthusiastic scientists and students, to discuss the latest developments and challenges related to these topics, exchange ideas, and review major experimental and theoretical efforts.

We as followers were inspired by the "spirit of the Gamow's conferences" at George Washington University,

so the topics of the Odesa Gamow's conferences are also quite diverse. On the wall of the main building of the university there is a memorial plaque dedicated to Gamow. Following the appeal of participants of the First Gamow's Conference in 1994 and the rector of Odesa University to the Mayor of Odesa, a decision was made to name one of the city's beautiful squares after Gamow. As a result of the work of the Gamow's conferences, the Jubilee Gamow Medal and scholarships for students of physics and astronomy were established at Odesa University. More information about the Gamow Conferences is available on the website: [www.gamow.odessa.ua](http://www.gamow.odessa.ua). Publications of the history of the Gamow conferences in Odesa in publications (Ryabov, 2004, 2006, 2010, 2020). The page of materials of all Gamow's conferences at Odesa University on the website of the Scientific Library: [lib.onu.edu.ua](http://lib.onu.edu.ua).

Gamow's conferences in Odesa have been held for 30 years (since 2000 without a break!) thanks to the dedicated efforts of the members of the Scientific and

Local Organizing Committee, representing the Astronomical observatory of Odesa I.I.Mechnikov National University, the Institute of Radio Astronomy of the National Academy of Sciences of Ukraine, with the unwavering support of the Ukrainian Astronomical Association, and the active participation of the Odesa Astronomical Society.

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