



FIND BY NAME YEAR OF INDUCTION NATIONALITY SEARCH

INTERNATIONAL SPACE HALL OF FAME

AT THE NEW MEXICO MUSEUM OF SPACE HISTORY

FRIDRIKH A. TSANDER

USSR

Inducted in 1976



Constructed and tested the first liquid propellant rocket motor in the Soviet Union.

Fridrikh Tsander (or Tzander) was born on August 23, 1887, to a prosperous German-speaking family in Riga, Latvia, then part of the Russian Empire. His father, a physician, encouraged his son's interests in both science and science fiction, and Fridrikh began a life-long fascination with the possibility of life beyond Earth. He also became interested in airplane gliding, and after 1903, read extensively about the powered flight achieved by the Wright Brothers in the United States. These interests led him to pursue a career in aviation engineering after graduating from the Riga Polytechnic School in 1907.

That year, Tsander read *The Exploration of Space by Means of Rocket Devices* by Konstantin Tsiolkovsky and began to shift his focus from airplanes to spacecraft. Beginning in 1919, while working at a motor aircraft plant in Moscow, he proposed the first systematic method for the early development of space flight, a planned program of three phases:

1. The analysis of the problems associated with space flight.
2. The development of rocket engine theory.
3. The building and testing of rocket engines.

Fridrikh Tsander believed that the multi-staged rocket was the key to space flight, and he worked on a number of designs for rocket airplanes. Within ten years of the beginning of his process, Tsander hoped to be able to design a rocket plane that could leave and enter the atmosphere on wings and while using jet propulsion to maneuver in outer space. He calculated trajectories of interplanetary travel that employed solar and planetary magnetism as well as gravitation and laid out a plan for a three-stage rocket engine, a detailed design of operations of



In 1908, he made notes about the problems of interplanetary travel in which he addressed issues such as life support and became the first to suggest growing plants in greenhouses aboard a spacecraft. In 1911, he published plans for a spacecraft built using combustible alloys of aluminum in its structure that would take off like a conventional aircraft and then burn its wings for fuel as it reached the upper atmosphere and no longer needed them.

In 1919 Zander lodged a [patent](#) in [Moscow](#) for a winged rocket that he believed would be suitable for interplanetary flight, and in October gave a lecture to the [Moscow Institute](#) on the possibility of reaching Mars by rocket