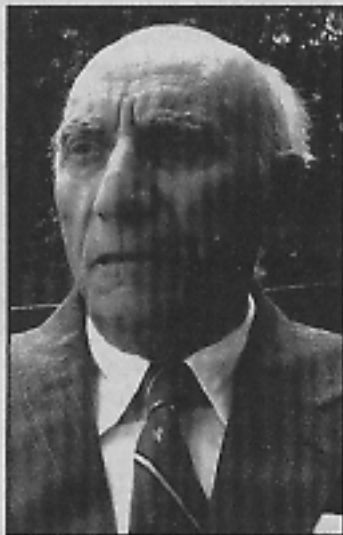


## Irani who helped put man on the moon turns 100

**A**bolghassem Ghaffari, who helped put man on the moon as a mathematician with the U.S. Space Agency, marked his 100th birthday last Friday in Los Angeles.

Ghaffari was born in Tehran and educated at the Darolfonoun School there. He went to France in 1929 to study mathematics and physics at Nancy University and received his doctorate from the Sorbonne. In 1936 he worked at the Paris Observatory on celestial mechanics, the foundation of his later work calculating how much power was needed to get a rocket into orbit around the moon without shooting passed it.

Ghaffari returned to Iran in 1937



**GHAFFARI**  
... the right stuff

to teach at the University of Tehran. After the war, he frequently traveled to Britain and the United States on research work. In the early 50s, he worked with Albert Einstein at Princeton University at the Institute of Advanced Studies on the Unified Field Theory of Gravitation and Electromagnetism. Einstein was very curious about Iran and once asked Ghaffari, "So how did Persia become Iran?"

Robert Oppenheimer, who headed the U.S. atom bomb program during World War II, was director of the Institute at the time and befriended Ghaffari. Ghaffari told the *Iran Times*, "I felt pity for Dr. Oppenheimer because his guilt and smoking had taken a real toll on him. He was sick [with cancer] and was hobbling around with a cane. I could feel the end was near." Oppenheimer died of throat cancer four years later at the age of 62.

In 1956, Ghaffari moved permanently to the United States to take up a position with the U.S. National Bureau of Standards in the mathematics division. Part of his work there involved calculations of the motion of artificial earth satellites.

In 1964, three years into the manned space program, he joined the National Aeronautics and Space Administration (NASA). His chief responsibility there was to figure out how to get a rocket to the moon, accounting for the gravity of the earth and the gravity of the moon and calculating how many and how powerful mid-course corrections would be required to place a rocket into orbit



around the moon. An error would send the rocket crashing into the moon or scaring passed it into deep space.

For the manned space program, he also had to get the rocket back again.

Ghaffari retired from NASA in 1972, three years after the Apollo program placed the first men on the moon—and got them back safely.

Ghaffari's mind remains very lucid and is in much better condition than his body. When asked about how it feels to be 100, he said, "I'm not happy, because I can't work in an office anymore. I do get to do some independent research at home."

Ghaffari marked his 100th birthday at home with his wife and two daughters after finishing a brief stay in the hospital. Mayor Jimmy Delshad of Beverly Hills helped celebrate the occasion by issuing a certificate lauding Ghaffari's contributions to the U.S. space program. ❧