

A black and white photograph of an astronaut on the moon. The astronaut is wearing a full spacesuit with a large backpack and is holding a long, thin probe. The moon's surface is rocky and covered in dust. In the foreground, there is a large rock and a color calibration chart on a tripod. The background shows the horizon of the moon under a dark sky. The text 'BIG IDEA' is written vertically on the left side of the image.

# BIG IDEA

## JUST HOW OLD IS THE MOON?

More than 4 billion years ago, a giant Mars-sized object crashed into Earth. A colossal hunk broke off to form the Moon, and the energy of the impact melted the rock that eventually became the Moon's surface.

Some previous assessments estimated the age of the Moon at 4.42 billion years. A new study, which analyzed tiny lunar crystals gathered in 1972 by Apollo 17 astronauts, showed that estimate was wrong. The new study found that the Moon is actually 4.46 billion years old—40 million years older than previously thought.

Led by researchers at Chicago's Field Museum and the University of Glasgow, the study was made possible by Northwestern University's Center for Atom-Probe Tomography, which nailed down the age of the oldest crystal in the sample.

Northwestern's Dieter Isheim, research associate professor, and David Seidman, Walter P. Murphy Professor Emeritus of Materials Science and Engineering and founding director of the center, analyzed zircon crystals hidden within dust collected from the Moon. After determining the makeup of the materials in the sample and performing radiometric dating, researchers pieced together the revised timeline of the Moon's formation.

Photo by NASA