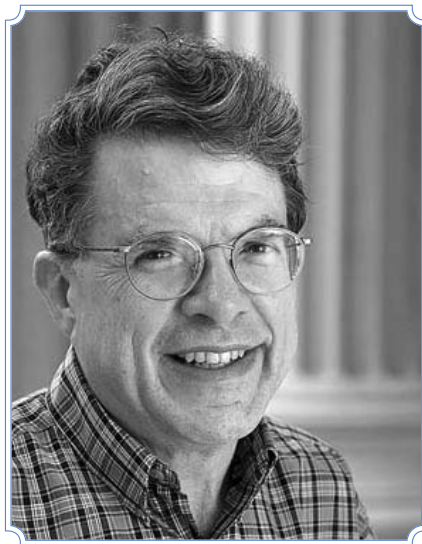


## In Remembrance

James Elliot, EAPS, physics professor, at age 67. Led team that discovered the rings of Uranus in 1977.

MIT News Office

**J**ames Ludlow Elliot, a professor of planetary astronomy and physics at MIT who discovered the rings of Uranus in 1977, died on March 3, 2011, from cancer-related complications. He was 67.



Elliot was known as one of the great observational planetary astronomers of the modern era. Among his accomplishments were leading the team that discovered the ring system of Uranus, and discovery of the atmosphere of Pluto. He was committed to excellence in teaching and mentoring, and was a staunch advocate for women in science.

Elliot was born on June 17, 1943, in Columbus, Ohio. He received an undergraduate degree in physics from MIT in 1965 and a Ph.D. in astronomy from Harvard University in 1972. While a graduate student at Harvard, Elliot was an avid observer on the 60-inch telescope at the Agassiz Station in Harvard, Mass. He held a postdoctoral position at Cornell University, and joined the faculty of Cornell's Astronomy Department in 1977. He returned to MIT in 1978,

after he discovered Uranus's rings alongside Edward Dunham and Douglas Mink. He was also the director of MIT's Wallace Astrophysical Observatory.

Elliot was one of the pioneers in the technique of stellar occultations: watching a star as a planetary object moves in front of it, and studying the planetary object from the effect on the star's light. Elliot used occultations to probe planetary atmospheres as well as the physical properties of small bodies in the outer solar system.

But catching occultations can be challenging, since the events themselves might last only seconds and there are no second chances. To record them electronically, a team must be completely prepared.

Elliot, however, excelled in coordination and preparation. When the planet Uranus was about to cross in front of a star in 1977, he and his team were flying in the Kuiper Airborne Observatory, telescopic equipment trained on the star, waiting.

Photo: Justin Knight Photography

Because of the uncertainty in the event's timing, they turned their equipment on about an hour in advance. To their surprise, the starlight disappeared briefly several times before the planet moved in; after the planet had moved on, the star winked out again several times. They realized that the symmetric dips in the star's brightness—before Uranus itself hid the star and after the star re-emerged—were caused by a ring system around the planet. Their discovery was confirmed by several more occultation events, and eventually with direct imaging from the Voyager 2 spacecraft, the Hubble Space Telescope, and otherwise. Elliot received a NASA Medal for Exceptional Scientific Achievement for this discovery.

With the same occultation technique, Elliot and colleagues observed Pluto as it crossed in front of a star in 1988. The gradual manner in which the star disappeared allowed them to deduce that Pluto had an atmosphere, since in the absence of an atmosphere the star would have disappeared abruptly. Subsequent occultations have revealed that the atmosphere changes with time.

Elliot was especially supportive of women in astronomy. At a science celebration at MIT held in his honor in June 2010 (called the “Jimboree”), nearly two dozen of his former and current students—more than half of them women—spoke about their research, as well as life lessons learned from Elliot. One common theme was his gift for engaging his students deeply in his research, and then sending them off on their own with his utter trust that they could do the research themselves. He also conveyed to all his students a strong work ethic, admonitions to always be prepared and reminders to always trust the data. At the Jimboree, notes of remembrance were captured on white index cards, because Elliot was never caught without one in his pocket.

Jim Elliot is survived by his wife, Elaine; his daughters, Lyn and Martha; son-in-law, Lute Breuer; his granddaughter, Bella Breuer; a brother, Tom Elliot; and sisters, Suzanne Elliot and Martha Bureau.

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