



Fall 11-9-1998

Physicist . . . Novelist . . . Playwright IWU's Tony Rothman Co-Authors New Physics Book Expressing Doubt and Certainty About Key Scientific Questions

Bob Aaron
Illinois Wesleyan University

Follow this and additional works at: <https://digitalcommons.iwu.edu/news>

Recommended Citation

Aaron, Bob, "Physicist . . . Novelist . . . Playwright IWU's Tony Rothman Co-Authors New Physics Book Expressing Doubt and Certainty About Key Scientific Questions" (1998). *News and Events*. 801.
<https://digitalcommons.iwu.edu/news/801>

This Article is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.

Nov. 9, 1998

Contact: Bob Aaron, 309/556-3181

Physicist . . . Novelist . . . Playwright

**IWU's Tony Rothman Co-Authors New Physics Book
Expressing Doubt and Certainty About Key Scientific Questions**

"A fascinating and original book, "Doubt and Certainty" introduces readers to the fundamental questions which are at the forefront of science at the end of this century."

--Ilya Prigogine, 1977 Nobel Prize winner, Chemistry

BLOOMINGTON, Ill.--Pulitzer Prize-nominated writer-physicist Tony Rothman's sixth book, "Doubt and Certainty," will be on bookstore shelves, Nov. 18.

Rothman, an Illinois Wesleyan University assistant professor of physics and mathematics, says: "'Doubt and Certainty' is about what we know, what we don't know, and what we don't know about what we know. It's unlike other popular science books that talk about the latest discoveries. We look at basic issues in science."

For example, Rothman says, a typical question probed in the book is whether space and time are curved by gravity.

The book, according to Rothman, will be controversial because "we are willing to think about questions most people would say are closed. For example, it is routinely stated that space is curved due to Albert Einstein and his Theory of Relativity--but can it be described in other ways? It's not a black and white issue.

"Most physicists tacitly accept many things," Rothman said, "but we point out that certain fundamental assumptions can be questioned."

"Doubt and Certainty," according to Rothman is written in an off-beat fashion.

"It takes place," he explained, "in a modern version of Plato's Academy--or at least some people will think that. Actually, it's based on an unpublished novel of mine. Readers wander into the Academy and participate in debates. The debaters are famous scientists and philosophers--past and present--including Aristotle, Pythagoras, Sir Isaac Newton, and others.

"The book," Rothman added, "is part narrative and part dialogue."

Among the 10 debates featured in the book are: Is the universe describable?, Why do things happen?, Does time go forward?, Why is there left and right?, Is the universe weird?, and How did we get here?

"The book," Rothman said, "is written for the educated, lay person--non-specialists. It explores serious subjects but in a witty style.

"I hope readers come away with new ways of looking at things," Rothman added. "I hope they ask new questions and I hope 'Doubt and Certainty' stimulates readers to look at perennial questions in new ways."

Speaking of his co-author, George Sudarshan, Rothman said: "He's one of the world's leading physicists." Sudarshan is the former director of the Center for Particle Theory at the University of Texas-Austin and co-author of three physics textbooks.

The 336-page, hard cover "Doubt and Certainty" (ISBN: 0-7382-0006-9) is published by Helix Books/Perseus Books and is priced at \$25.

Editor's Note: The complete title of Rothman's book is: "Doubt and Certainty--The Celebrated Academy, Debates on Science, Mysticism, Reality, In General on the Knowable and the Unknowable, with Particular Forays into Such Esoteric Matters as the Mind Fluid, the Behavior of the Stock Market, and the Disposition of a Quantum Mechanical Sphinx, To Name a Few." For review copies, contact: Sharon Rice, Perseus Books, 781/944-3700 x2677 or e-mail her at <sharon.rice@awl.com>.

A Writer-Physicist

Rothman is comfortable working in the very different worlds of science and literature, noting he is not grappling with an "identity crisis."

"I can't focus on one thing all the time," Rothman confesses, adding, "It's difficult to be pigeonholed" in one field.

And, just like himself, he says, "I encourage students to be multitalented."

Rothman grew up in a multitalented family. His father was a physicist and writer, who was interested in music. His mother was interested in psychology, music, and art.

"I was raised," Rothman said, "at the intersection of many disciplines."

Writing has attracted Rothman since age 8, when he wrote his first short story--a project that wasn't assigned to him in school.

The lure of writing also seems to run in the Rothman family. Rothman's father is a retired physicist who wrote some science fiction and popular science pieces. The world's first officially recognized science fiction convention took place in Rothman's grandfather's living room in 1936.

"I grew up surrounded by science fiction writers," Rothman said, "people like Lester Del Rey, who I consider my godfather, and Isaac Asimov."

Consequently, it was natural for Rothman to gravitate toward writing science fiction. His first unpublished piece was penned at age 16. By age 22, he wrote a best seller, "The World is Round."

He began the novel, Rothman said, "during final exam week [when he was an undergraduate at Swarthmore College] and it was finished 14 months later.

"In the meantime," he explained, "I actually lost the manuscript in the trunk of a car while hitchhiking around Scotland, only to have it mysteriously returned to me the next day. In those days, I wrote quickly, and about a third of the novel was written in the space of a week . . ."

Teaching Physics Through Novels

"The World is Round" takes place on an artificial planet, with a diameter 50 times that of Earth, built around a small black hole.

"Even at that time," Rothman said, "I was concerned with the history of science and the question of how we know what we know, and so I used the setting to ask whether people living on the planet--not realizing that it was artificial--could determine its true nature, for instance that the world was round. In this way I hope the novel taught some physics."

Textbooks, Novels, Plays

Rothman is a physicist, novelist, and playwright whose book, "A Physicist on Madison Avenue," was nominated for a 1991 Pulitzer Prize and in 1996 was chosen as one of the 120 best books for spurring science literacy by the American Association for the Advancement of Science.

"A Physicist on Madison Avenue" is based on a series of articles Rothman wrote for Discover magazine in 1987.

The book's focus is seen in its first two essays. The first piece, Rothman explained "demonstrates how the thought processes of scientists differ markedly from that of nonscientists. The second essay concerns the efforts of scientist-instrument makers to improve traditional musical instruments, such as the violin."

Rothman also is the author of "Frontiers of Modern Physics," three collections of essays, and "Instant Physics," a primer aimed at an audience with no physics background.

"Science a la Mode" and "A Physicist on Madison Avenue" were chosen as selections by the Library of Science Book Club.

Rothman was the scientific editor of Andrei Sakharov's memoirs. Sakharov was a leading Soviet physicist, atomic scientist, and dissident, who won the 1975 Nobel Peace Prize.

Rothman also has written a suspense thriller, "Firebird," set in a fictitious fusion laboratory on the outskirts of Austin, Texas. Currently, he is marketing the novel.

Interest in Russia

Beginning in 1979, Rothman began traveling to the Soviet Union and has made more than a dozen visits. He lived there in 1982-83, when he was at the Shternberg Astronomical Institute in Moscow.

His book, "Censored Tales," a collection of short stories published in England, is based on Rothman's experiences in the Soviet Union during the 1980s.

"Unfortunately," Rothman said, "by the time 'Censored Tales' appeared, the Soviet Union was on its last legs and interest in the country was waning."

Physicist as Playwright

Rothman also has written four plays, including: "The Magician and the Fool," which won the Oxford 1981-82 Experimental Theatre Competition; "The Sand Reckoner," staged at Harvard University in 1995, and "Melisande," which received its first reading under the direction of Tom O'Horgan, with F. Murray Abraham in the lead. O'Horgan was the director of the original Broadway productions of "Hair," "Jesus Christ Superstar," and "Lenny." Abraham has starred in films such as "Amadeus," "The Name of the Rose," "Last Action Hero," and "Mighty Aphrodite."

Rothman's work on Evariste Galois, a French mathematician who pioneered set theory and was killed in an 1832 duel, won the Mathematical Association of America's 1983 Ford Writing Award.

He also has been a contributor to The New Republic, Boston Review, Bostonia, Scientific American, Discover, Analog, Astronomy, Gettysburg Review, and other publications.

Keya Davidson, writing in the San Francisco Examiner, said: "It's hard to think of a more wonderful science writer than Tony Rothman. I first discovered his prose several years ago, when he wrote a cover story for Discover magazine about the 'direction' of time--a subject that may sound metaphysical, even silly. Actually, it's one of the cutting-edge topics in cosmology and thermodynamics, and his article not only made it clear but entertaining.

"He achieved the same feat," Davidson added, "in his books 'Science a la Mode' and 'A Physicist on Madison Avenue,' which tackled themes as grand as 'nuclear winter' and the fate of the

universe. So I highly recommend . . . 'Instant Physics,' which endeavors to explain all of physics in lay terms, and in 242 pages--and succeeds."

Thoughts About Teaching

Rothman is a committed teacher and he sees teaching as an art.

"The older I get," Rothman confesses, "the harder I find it to be a good teacher because of the generation gap. When I was younger, I was one of the gang--just a little older than my students--and they looked at me as a big brother.

"Now," he adds, "I'm a full generation older than my students and have much less in common with them. It's a dilemma for me because I feel you teach the students--not the subject. Yet, as a physicist, I know my students have to learn certain things."

Writing, Rothman believes, has helped him sharpen his teaching skills.

"I think I'm a good expositor," Rothman said, "because of my popular writing in which I work through sophisticated arguments."

Rothman's Background

Rothman received a bachelor of arts degree in physics from Swarthmore College in 1975 and a doctorate from the Center for Relativity at the University of Texas, Austin, in 1981. His areas of expertise are physics, mathematics, astronomy, astrophysics, and cosmology, the study of the early universe.

While a graduate student, Rothman studied Russian at Middlebury College's Summer Language School and at Leningrad State University.

After leaving the University of Texas, Rothman did post-doctoral work in cosmology at Oxford (England), Shternberg Astronomical Institute in Moscow, Union of Soviet Socialist Republics (USSR), and the University of Cape Town in South Africa. He was a lecturer at Harvard University, an assistant professor at Bennington College, a member of the Princeton Plasma Physics Laboratory, and the physics department at the University of Texas-Austin.

Rothman also has had teaching and research posts at the Center for Relativity at the University of Texas, Austin, Harvard College Observatory, Tufts University, Princeton University, and the National Radio Astronomy Observatory. He was an editor of Scientific American in 1988-89.

About IWU

IWU, founded in 1850, enrolls about 2,000 students in a College of Liberal Arts, and individual schools of Music, Theatre Arts, Art, and Nursing. Since 1994, these facilities have been added to the IWU campus: a \$15 million athletics and recreation center, a \$25 million science center, a \$6.8 million residence hall, and a \$5.1 million Center for Liberal Arts.

--30--

| [Top of Page](#) |
