



# A Tale of Power and Intrigue in the Lab, Based on Real Life

Next Article in Science (5 of 11) »



Left, Associated Press; right, Rodney White/Iowa City Press Citizen

Gang Lu, left, shot five people and himself at the University of Iowa in 1991, including Miya Sonya Rodolfo-Sioson, right.

By DENNIS OVERBYE  
Published: March 27, 2007

On Nov. 1, 1991, outraged that his doctoral thesis had been passed over for an academic prize, a young physicist at the [University of Iowa](#) named Gang Lu opened fire at a physics department meeting. He killed five people and paralyzed another before taking his own life.

The shootings devastated Iowa City and shocked a nation not normally used to thinking of physics as a life-and-death pursuit. Now they have been transformed into a celluloid nightmare for the rest of us.

### Related

[When Student-Adviser Tensions Erupt, the Results Can Be Fatal \(March 27, 2007\)](#)

[Enlarge This Image](#)



Matthew Margolin/Myriad Pictures

Lloyd Suh and Ye Liu, actors in the movie "Dark Matter," which is based on the shootings.

At the [Sundance Film Festival](#) in January, "Dark Matter," a fictional account inspired by the shootings, won the Alfred P. Sloan Prize for the best feature film dealing with science or technology — "not a genre that attracts a lot of people to work on," in the words of Brian Greene, a physicist, mathematician and author from [Columbia University](#) who was on the panel of judges.

But the prize, not to mention a bloody ending reminiscent of "Bonnie and Clyde" or "The Wild Bunch," may give a boost to its coming appearances on the film festival circuit.

The movie, directed by Chen Shi-Zheng, written by Billy Shebar and starring [Meryl Streep](#) and [Aidan Quinn](#), follows the adventures of a graduate student from Beijing, Liu Xing, who arrives at a fictional Valley State University to study under a famous cosmologist, Jacob Reiser (played by Mr. Quinn). Ms. Streep plays a philanthropist and patron of the university, who is an aficionado of Chinese culture who befriends Chinese students.

The professor is first impressed with Liu's brilliance and diligence but turns against him

SIGN IN TO E-MAIL OR SAVE THIS

- PRINT
- SINGLE PAGE
- REPRINTS
- SHARE

ARTICLE TOOLS



### MOST POPULAR

E-MAILED BLOGGED SEARCHED

1. It's Not You, It's Your Apartment
2. Video Games Conquer Retirees
3. Skin Deep: Got Crow's-Feet? Call the Downward Dog
4. Income Gap Is Widening, Data Shows
5. Living With Alzheimer's Before a Window Closes
6. Personal Health: You Are Also What You Drink
7. Garcia Márquez's Shiner Ends Its 31 Years of Quietude
8. Tensions Over French Identity Shape Voter Drives
9. Basics: A Radio Station Just for You
10. No Pet Left Behind

[Go to Complete List »](#)



**Business**  
[nytimes.com/business](#)

[What's next for HBO after The Sopranos finale on April 8?](#)

Also in Business:

- [Attention, fashionistas: sample sales are expanding](#)
- [Jim Cramer's guide to market manipulation](#)
- [April 15th is right around the corner - get the tax advice you need today!](#)

when he begins to pursue a project that goes against his mentor's favorite theory. He pulls the rug out from Liu's doctoral thesis, meaning that the student will have to leave school and seek a job without his degree. Instead Liu, played by Ye Liu, gets a gun.

The title refers to the invisible clouds of something that seem to swaddle the galaxies, and to provide the scaffolding for the structure and evolution of the visible universe. In the early '90s, when the movie is set, the existence and extent and nature of this dark stuff were the hottest questions in cosmology, and the arguments, jargon and even the graphs brandished by the movie's protagonists seem ripped from popular science writing of the time.

But the movie isn't really about science.

As Mr. Chen, the director, said, "It's about power, in a way." That would be the nearly feudalistic power that a graduate adviser has over his student, who after 16 or more years sitting in a classroom listening and regurgitating information must now change gears and learn how to produce original research. That grueling process has been the crucible in which new scientists are made ever since Plato mentored Aristotle, and although it rarely leads to murder [adjoining article], it can often lead to disaffection, strife and lifelong feuds.

"The film did a really good job of capturing the atmosphere of a research lab," Dr. Greene said.

"Graduate students are like apprentices," said Michael Turner, a cosmologist at the [University of Chicago](#). "It's from another era. It's something we don't do well anymore, hand-crafted training."

Advisers, he noted, write recommendations, decide when it is time for a student to defend his or her thesis and divvy up credit for the work that gets done together. Astronomers still argue about whether Jocelyn Burnell-Bell, who discovered the first pulsar while a graduate student at [Cambridge University](#) in England, should have shared in the subsequent [Nobel Prize](#) given to her adviser, Antony Hewish.

Janet D. Stemwedel, a philosopher at San Jose State University, recently wrote on her blog, [Adventures in Ethics and Science](#), "It's hard to understand just how powerless you can feel as a graduate student unless you have been a graduate student."

Dr. Turner said: "The bond between student and adviser is almost like getting married. You're going to be working and interacting with this person the rest of your life."

As the movie makes clear, the passage from student to junior colleague is only heightened in ambiguity and tension when you are thousands of miles from home and hardly speak the language.

James Dickerson, a physicist at [Vanderbilt University](#) who leads a committee on minorities in physics for the American Physical Society, said Asian students were often marginalized because of a perception, which he called "unstated racism," that they are exceptionally smart and are there to work 24 hours a day, 7 days a week. As a result they wind up as cogs in the research machine and remain isolated from the rest of the community and the culture.

"It's something not widely discussed in the physics community," Dr. Dickerson said.

Shing-Tung Yau, a [Harvard](#) mathematics professor and mentor of many young mathematicians, said China's one-child policy has added to the pressure on students.

"The Chinese family in general has high expectation on their children," he said in an e-

mail message. “When they realize that they cannot achieve it, they get very upset, especially the whole family have been telling their friends about him or her.”

“They also compete among themselves severely,” Dr. Yau added. “I observed that within my students.”

Dr. Lu, the Iowa gunman, was part of a wave of Chinese students recruited to come to Iowa to study plasma physics in the 1980s, when China was opening up to the West again after the Cultural Revolution.

Gerald Payne, a physics professor at Iowa then and now, said: “The selection process was very rigorous. We had exceptional students from China.”