

Teaching and Outreach

- Given over 6,000 lectures, taught more than 10,000 students!
- Directed 64 Ph.D. theses, 12 undergraduate senior theses and the research thesis of one high school senior.
- Developed graduate exchange programs with Tsinghua University and Fudan University.
- Arranged for Summer Science collaboratives for HS teachers and students to do experiments with various groups at Vanderbilt and Oak Ridge (12 years)

Teaching and Outreach

- Gave short physics lectures at Titans Football games.
 - Gave six lectures (each on a different topic) at six different Titans Football games.
 - Lectures displayed on the Jumbotron scoreboard
 - Each lecture was viewed by 65000 attendees in the stands, and also seen in the TV broadcasts
- Gave two 15-min lectures on electricity & states of matter which were shown on local and national public television 8-10 times/year for 15 years

Teaching and Outreach



Demonstrations

- Extensively used demonstrations in his teaching.
- Used more demonstrations than any other faculty member at Vanderbilt.
- Designed many of the most popular demonstrations himself.
For example
 - Bed of nails
 - rocket cart with fire extinguisher

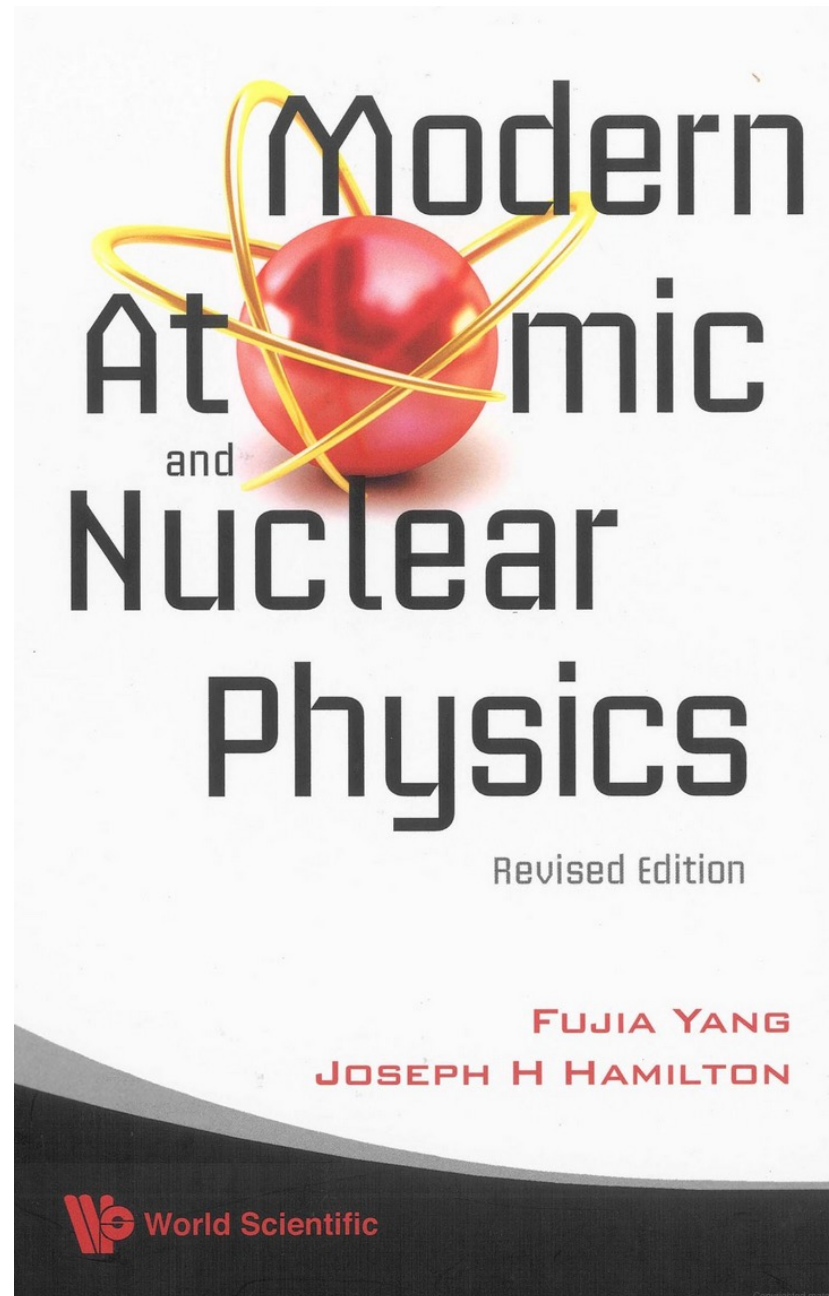


Demonstrations



Prof. Hamilton dressed up as Billy the Kid in a lecture discussion on the physics of guns and bullets

Textbook



Awards

Vanderbilt Awards

- Branscomb Distinguished professor
- Sutherland Prize for Research
- Furman Award for excellent teaching
- Jefferson Award for service
- Nordhaus Award for undergraduate teaching
- Voted by students as *Most Outstanding Vanderbilt Professor* and featured in the commodore Annual Yearbook in 1989



Demonstrations Are Hamilton's Forte

tired of boring lecture classes? Want something new and exciting? If so, then like Professor Joseph Hamilton's Physics 110a-b class. Although it is a large lecture class, Hamilton manages to enliven this PLE requirement course with his unique physics demonstrations. While explaining complex concepts, these demonstrations inject also to break the monotony of class.

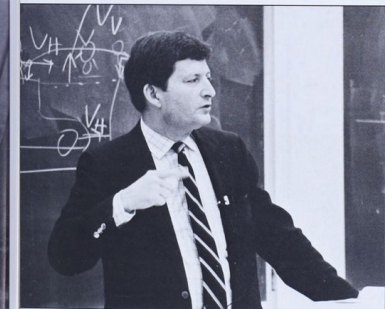
For Professor Hamilton, these demonstrations can do more than merely explain properties of Physics. He uses them as a way to relate to the students. While they illustrate principles, they "break down barriers" between professors and students. "His demonstrations, such as his favorite cart and bed of nails tricks, receive many laughs from the undergraduates. Oftentimes, the students are surprised at the measures Hamilton will take to explain a principle.

Joseph Hamilton, a specialist in nuclear physics, is not only a teacher for graduates and undergraduates. He also actively researches and has been greatly recognized for it. This Sutherland Prize and George B. Pegram Award recipient is presently studying nuclear structures in hope of forming a unified nuclear model. His excellence in research and scientific leadership has won him prestige and influence. In 1971, Hamilton raised money in order to organize UNISOR, University Isotope Separator. This instrument was first used by university students to study the structure of nuclei. Hamilton also founded the Joint Institute for Heavy Ion Research. This one million dollar building is now used by numerous graduate and undergraduate students. However when asked if he would ever be interested in only doing research, Hamilton adamantly refuses because he thoroughly enjoys teaching, especially Vanderbilt's bright undergraduates. He comments that

he likes teaching the nonscience majors course, Physics 110. Physics 110 has a long range impact by helping the students "understand the possibilities and limitations of science today and in today's society." Leslie Chalker, a sophomore in Peabody College, liked how Hamilton "always tried to show how Physics could be applied to our lives."

An example of this application stands out in Hamilton's mind. One semester, one of his students, Becky Scott was taking karate lessons. She had her instructor come to class to demonstrate the concept of impact by breaking cement blocks with his hand.

Outside of research and the classroom, Professor Hamilton relaxes by playing golf, shooting pictures (his wife complains that there is not enough space in the house for all his photographs), and traveling. Luckily, Hamilton has many opportunities to travel abroad through invitations to give lectures and attend seminars. His career in Physics has enabled him to visit sixty different countries. By being an adjunct and advisory professor at two universities in China, Hamilton and Vanderbilt graduate students are sent over to the Far East to develop programs and to do research.



In addition to lecturing, Joseph Hamilton also does many demonstrations. One of his favorites consist of his being sandwiched by a bed of nails. He even is brave enough to have a student stand on top. However, he can not forget the turban cause, "it is very dangerous to lie on a bed of nails without a turban."

Honors and awards for teaching, mentorship and research

- Humboldt Prize for Research, Germany
- Ilkovic Gold Medal for Career Achievements, Slovak, AKAD
- Flerov Prize for research, Russian Academy of Science
- Award for International Scientific and Technological Cooperation with China from PRC President
- International Cooperation Award, American Association for Advanced Science
- American Physical Society Award for mentoring
- Southeastern section APS, Beams awards research, Pegram Award Teaching, Slack Award Service
- **Outstanding Professor of the Year for Tennessee, 1991, from Council for Advancement and Support of Education, Washington DC**
- **Resolution by Senate, House, Governor of State of TN honoring long career and discovery of new element 117 and naming it for the State of Tennessee.**
- Similar resolution from Metropolitan Council, Mayor Nashville
- **Eight honorary Doctors Degrees**, St. Petersburg State U., Joint Institute Russia, Mississippi College, Eastern Kentucky U., Berea C., U. Frankfurt, U. Bucharest, Shukla U. India

Video Clips

- [Lecture to Titans football fans](#)
- [Bed of nails demonstration](#)