

Joseph L. Birman

(1927–2016)

Physicist who helped hundreds of scientists to escape oppression.

I first met Joseph L. Birman in 1979. He attended an unofficial seminar in Moscow for scientists like me who had lost access to academic institutions in the Soviet Union because of our political views or because we had applied to leave the country. We gathered in the apartment of a computer scientist who was under KGB surveillance (and later spent five years in prison and exile for anti-Soviet actions). This was before the Internet and social media. National borders were closed; we felt isolated and threatened by our government.

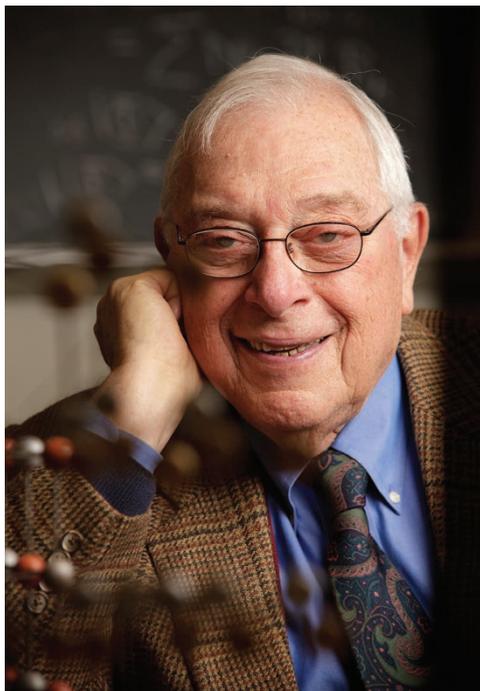
Although few Western academics dared attend our gatherings, there were many more people than chairs. Birman, a tall man, sat uncomfortably on the floor, trying to find space for his legs. Then, as always, he was talkative and cheerful: everybody's uncle.

Birman, who died on 1 October, was born in New York City on 21 May 1927, the grandson of Jewish immigrants from Russia. In 1943, he graduated from the Bronx High School of Science, famously an incubator of prominent researchers. He received a bachelor's in science from the City College of New York and a doctorate in theoretical physics from Columbia University in 1952, going on to work on the optical properties of semiconductors at GTE Laboratories in New York. A decade later, he became a professor at New York University, and in 1974, he joined the faculty of City College, where he remained until his death.

Sharply experimental in his thinking and prohibitively mathematical, Birman demonstrated how the branch of mathematics known as group theory can be applied to understand transitions between crystal phases and to predict light scattering and other optical properties of solids.

He leveraged the respect he gained from seminal papers in the 1960s and 1970s into advocacy for hundreds of scientists. In a letter endorsing Birman for the Andrei Sakharov Prize of the American Physical Society (APS), which recognizes scientists who fight for human rights, Iranian physicist Hadi Hadizadeh wrote: "His efforts to get me released from detention and solitary confinement in 2001 will not be forgotten by me, my family, and many scientists worldwide." Winning the award in 2010, Birman was delighted to see his name attached to that of the notable Soviet dissident and nuclear physicist.

Birman's trips to the Soviet Union began



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in the 1970s with official invitations from the Soviet Academy of Sciences. During those trips he learned about the plight of Jewish scientists in the country. They were often denied promotion, travel abroad and positions at top research institutions. Applying for an exit visa frequently resulted in loss of employment, but rarely in permission to leave. Open protests led to arrests and imprisonment.

Birman used his travels and eminence to challenge the heads of Soviet research institutions on behalf of scientists caught in this plight. It is thanks to the efforts of him and his colleagues that I did not end up in jail, despite multiple KGB interrogations, and was finally allowed to leave the Soviet Union.

In the early 1990s, when many scientists in Russia were finally allowed to emigrate, Birman helped to establish the Program for Refugee Scientists in the United States, raising funds from private foundations. This supported visiting positions for more than a hundred émigré scientists in US universities and gave them time to secure permanent positions in industry and academia.

Birman played a crucial part, along with particle physicist Robert Marshak, in recovering a generation of Chinese physicists lost to Mao Zedong's cultural revolution in the 1960s and 1970s. During this time, most scientific research

ceased, concepts such as Einstein's theory of relativity were denounced as bourgeois and scientists were sent to do manual labour in the countryside. In 1983, Birman and Marshak travelled to Beijing on behalf of the APS and signed an agreement with the Chinese Academy of Sciences and the Ministry of Education that brought more than 60 middle-aged physicists to work in labs throughout the United States for up to three years. Many leaders of Chinese physics are alumni of that programme, and the scientific cooperation between Chinese and US physicists that now exists evolved largely from it.

When the programme came to an end in the tragic aftermath of the Tiananmen Square protests in 1989, Birman redirected his efforts to achieve justice for Chinese scholars who openly spoke their minds. He would get phone calls and even surprise visits from Chinese scientists. He welcomed and did everything in his power to help these people, counselling them on how to manage their careers and providing contacts and recommendations.

Birman chaired human-rights committees at the APS and the New York Academy of Sciences and in that capacity wrote hundreds of letters to heads of governments, kings and religious leaders. He publicized cases of unjustly imprisoned scientists. For more than 40 years, he served as vice-chair of the Committee of Concerned Scientists dedicated to protecting human rights and scientific freedom around the world.

Joe met Joan Sylvia Lyttle when they were both at graduate school. They married in 1950 and had three children. She became a professor of mathematics at Columbia University. The day before Joe died, he and Joan had spent hours discussing a potential overlap between her work on topology and his model of how the phase of a particle is influenced by its trajectory through space.

As much as Joe loved physics, getting a scientist out of prison had infinitely greater value to him than any scientific achievement. As a physicist and a humanitarian, Joe's influence touched so many lives. He will be dearly missed by his friends and remembered by hundreds of people he helped. ■

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