Yuri Orlov was an extraordinary human being: an indefatigable human rights activist and a highly productive scientist of renown. He was born August 13, 1924 and passed away September 27, 2020.

He graduated from high school in 1947 after a six-year interruption for war service as a worker in a T-34 tank factory and as an artillery officer in the Red Army.

After university, he became a graduate student and employee of the Institute for Theoretical and Experimental Physics (ITEP) in Moscow. As a result of giving a pro-democracy speech there in 1956, he was fired, publication of his Ph.D. thesis was blocked for two years, and his employment as a physicist in Moscow was blocked for 16. He left Moscow to do physics in Armenia. Upon returning to Moscow in 1973, he found work as a physicist, helped organize the Soviet branch of Amnesty International and wrote his famous "Letter to Brezhnev" in defense of Andrei Sakharov, arguing for political and economic reforms. In retaliation, he lost his job and had to subsist as a private tutor. Three years later, he founded and became first head of the Moscow Helsinki Group, which monitored Soviet adherence to the human rights provisions of the 1975 Helsinki Accords between the Soviet Union and the West. In 1977, he was arrested and sentenced to 12 years of hard labor and exile in Siberia. In 1986, he was stripped of Soviet citizenship and deported to the U.S. as part of a prisoner exchange. This was partly a result of pressure from the widespread international "Free Orlov" movement among scientists and science organizations, which was spearheaded by the Scientists for Sakharov, Orlov, Sharansky (SOS) group cofounded by LBNL’s Sessler and Pripstein. Ronald Reagan received Orlov at the White House on October 7, 1986 only days after his arrival in the U.S.. Orlov then traveled around the U.S. and Europe for the next several months, lobbying heads of state and delegates to the Vienna Conference on Security and Cooperation in Europe, to bring attention to the remaining Soviet political prisoners. He arrived at Cornell in 1987.

As an undergraduate student at the Physical-Technical Institute in Moscow, Orlov studied under
Kapitsa, Landau, Budker, and Berestetsky. As a graduate student at ITEP, he worked on the
design of a proton synchrotron and did original work on accelerator theory, notably describing
the non-linear motion of particles in terms of Hamiltonian perturbation theory known from
planetary motion. After his employment in Moscow was blocked in 1956, he went to study and
work at the Yerevan Physics Institute (YPI) in Armenia. There he received his first Ph.D., did the
theoretical design of the accelerator to be built at YPI, and wrote many highly original papers on
accelerator theory. These contained some of the earliest work on quantum radiation damping and
excitation of particle oscillations in accelerators, and also on the dynamics of beam polarization.
He was elected a corresponding Member of the Armenian Academy of Sciences and became a
Professor at YPI in 1970. In parallel to his work at Yerevan, Orlov was also engaged in work at
the Budker Institute of Nuclear Physics (BINP) in Novosibirsk, where he received his second
Ph.D. in 1963. In Novosibirsk, he participated in the design of colliding beam accelerators, the
first of which came into operation in 1963. Finally back in Moscow, but forbidden to work at
ITEP and Moscow University, he was employed 1972-73 at the Research Institute of Terrestrial
Magnetism and Dissemination of Radio Waves in the Moscow region. At this point his story
moves to the human rights activity described above.

In 1987, Orlov arrived at Cornell as a Senior Scientist, where he would conceive of many
ingenious improvements to the Cornell accelerator over the years. Shortly after his arrival, he
became involved in – and would go on to make original contributions to - a complex experiment
at Brookhaven National Laboratory to measure the magnetic moment of the Muon with
extremely high precision. He also spent a year (88/89) as a visiting scientist at CERN, the
European Laboratory for Nuclear Research. In 1993, he became an American citizen. In 2008, he
was appointed professor of Physics and Government at Cornell, becoming professor emeritus of
Physics in 2015. In the same year, he joined another extremely difficult experiment to make
precision measurements of the electric dipole moments of several fundamental particles looking
for departures from expected values and for fundamental symmetry violations in nature.

Prior to his arrest in 1977, he co-authored 50+ scientific papers in leading journals and
proceedings, as well as 40 human rights documents and appeals. While in labor camp he
authored two scientific papers, several human rights appeals and a document on the situation of
prisoners and forced laborers in the Soviet Union, all of which were smuggled out, largely on
snippets of cigarette paper, and published in the West. After his arrival at Cornell he co-authored
another 100+ scientific articles and numerous technical reports. His autobiographical memoir
“Dangerous Thoughts” was published in the U.S. (1991), Russia, Germany, France, and Ukraine.

Orlov received several human rights awards including the Carter-Menil Human Rights Prize,
The Human Rights Award of the International League of Human Rights, and the American
Physical Society’s (APS) Nicholson Medal and its Andrei Sakharov Prize. He was a member of
the American Academy of Arts and Sciences and a fellow of the American Physical Society. In
2020, Orlov was awarded the APS Robert R. Wilson Prize for Achievement in the Physics of
Particle Accelerators just a few days before his death.

Yuri Orlov’s achievements as a giant of human rights as well as a leading scientist in accelerator
physics made his life unique and much to be admired.
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