

## Sakharov Is Tokamak's Originator FREE

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hole. For those who are into old album rock, this is a song worth listening to.

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## Sakharov Is Tokamak's Originator

The idea for the tokamak, a thermonuclear reactor whose construction is based on the toroidal magnetic confinement of a high-temperature fusion plasma, was first proposed in 1950 by Andrei Sakharov, my late husband. In collaboration with Igor Tamm, Sakharov wrote the first papers on the tokamak. The papers were classified until 1956, when Igor Kurchatov reported them at a conference in Harwell, UK, and were subsequently published in the *Proceedings of the Second International Conference on the Peaceful Uses of Atomic Energy* (Pergamon Press, 1961). This was the beginning of the worldwide work on controlled thermonuclear reaction. Because Sakharov and Tamm were working full-time on the development of a fusion bomb, Lev Artsimovich and Mikhail Leontovich were put in charge of work on the construction of a practical thermonuclear reactor in the USSR. Since Leontovich's death in 1981, Evgenii Velikhov, who succeeded him, has been mistakenly perceived as the originator of the tokamak.

In the USSR, Sakharov's role was initially concealed due to the highly secret nature of his work on nuclear weapons, and then due to his ousting from the Soviet elite in 1968 when he took a public stand on human rights and other political issues. Now there is no reason to conceal his being the originator. In chapter 9 of his *Memoirs* (Alfred Knopf, 1990), Sakharov describes in some detail the early Soviet work on a thermonuclear reactor.

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## Lessons Learned from the World Year of Physics

I have learned or understood more physics this year by way of the excellent articles, letters, and discus-

sion in *PHYSICS TODAY* than in my entire undergraduate education. In particular, the articles and discussion on fundamental physics related to Einstein's legacy have been scientifically and historically stimulating. Each month I look forward to reading the magazine, and I hope its quantum leap in educational value will shine on in subsequent issues after the World Year of Physics 2005 and the many celebrations of it.

Now what shall we do about undergraduate education? Perhaps

compulsory reading and discussion of *PHYSICS TODAY* is in order, starting from January 2005!

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## Sorting Out the Potts Models

It was a great pleasure to hear that the American Physical Society had awarded me the 2006 Lars Onsager

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