V. Stefan

Nikola Tesla Laboratories
Stefan University, La Jolla, CA 92038-2946

A Note on the Rosenbluth paper: Phys. Rev. Letters, 29, 565 (1972), and the Research in Parametric Plasma Theory Thereupon

In Russia,[*] they say: when the Tsar builds there is a plenty of work for the masons' guilds.

I see the **Rosenbluth** 1972-paper in that spirit. It is rich in ideas, of a deep scope, and error free. In his 1958-*Science* paper, **Edward Teller**[1] says that many of his young collaborators made errors, but Rosenbluth's calculation was error-free. The paper initiated a number of research programs worldwide concerning the character of parametric instabilities, convective versus absolute, especially in connection with the controlled thermonuclear fusion research. I know first hand that the Rosenbluth paper was of a high concern for the laser fusion program at Lebedev Institute of the Russian Academy of Sciences led by **Nikolay Genadievich Basov**,[2] who, with **Oleg N. Krokhin,**[3] in the early 1960s in Russia (then the Soviet Union) and **John M. Dawson**[4] in the States, independently, proposed lasers in interaction with the fusion pellets as a new thermonuclear fusion scheme. I was in Moscow, on and off from late 1977 to mid-1981, and was a participant in the research on that subject in the Lebedev (Department of the Plasma Theory founded and led by **Victor Pavlovich Silin**[5]). Similar work on laser-plasma interactions and Tokamak confined plasmas was done at the MIT Plasma Fusion Center led by **Abraham Bers**,[6] who had extensively studied the problem earlier. For the Elmo Bumpy Torus and Magnetic Mirror plasmas, the convective-absolute character of parametric instabilities was addressed at JAYCOR, Inc. led by **Nicholas A. Krall**.[7]

I will discuss the research on convective-absolute character of parametric instabilities in the research centers in the States and Russia in the 70s and the early 80s.

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[*] Marshall Rosenbluth (1927—2003) ancestors moved to the States from Odessa, Russia. at the turn of the 20th century.

[1] Edward Teller (1908—2003), a Hungarian born American physicist, known as "the father of the American hydrogen (thermonuclear) bomb."

[2] N. G. Basov (1922—2001), a Russian physicist; winner of a 1964 Nobel Prize in physics with A. M. Prokhorov and C. H. Townes

[3] O. N. Krokhin (b.1927), a Russian physicist, known for his research in laser fusion.

[4] J.M. Dawson (1930—2001), an American physicist, known for his research in plasma particle accelerators and computational plasma physics.

[5] V. P. Silin (b.1927), a Russian physicist, known for his work in nonlinear plasma theory and superconductivity.

[6] A. Bers (b.1930), a Romanian born American physicist, known for his works on the space-time evolution of instabilities, RF current drive in Tokamaks, and nonlinear plasma physics.

[7] N. A. Krall (b.1932), an American physicist, known for his classic textbook: *Principles of Plasma Physics*, he co-authored with A. Trivelpiece, and his research in alternative concepts in controlled thermonuclear fusion.