U.S. courts Russian ABM scientists

by Charles B. Stevens

The Feb. 10 *Aviation Week* reports that "The U.S. Strategic Defense Initiative Organization has formulated a plan to acquire antiballistic missile technologies and specialists from Russia as soon as possible." The plan has identified 50 areas of technology "in which the U.S.S.R. was deemed to be ahead of the U.S." Employment of more than 1,000 former Soviet scientists and engineers, for as little as $5,000 per person annually, is also detailed in the plan.

Most of the six areas targeted with the "highest acquisition priority," are technologies identified by the Fusion Energy Foundation (FEF) as early as 1977, and emphasized in national TV broadcasts by presidential candidate Lyndon LaRouche (a member of the foundation's Board of Trustees) during the 1980s. These six are: 1) neutral particle beam accelerators; 2) vacuum tubes; 3) nuclear space electric power systems; 4) electric plasma rocket engineers; 5) large-thrust liquid rocket engines; 6) general technical data on Soviet missile technology.

In a 1987 report, "Neutral Particle Beam R&D," Los Alamos National Laboratory in New Mexico revealed that their radio frequency quadrapole accelerator "is one of the key elements that allows advanced accelerators to be compactly configured for space applications," and that it is "based on a Soviet invention." The concept was originally developed at a major scientific laboratory in Novosibirsk in Siberia. The concept is not only applicable to compact relativistic particle beam accelerators, but represents an across-the-board development in the technology of high-power directed energy systems. In particular, the scientific concept involved permits direct applications to Free Electron Laser systems and Radio-frequency Electromagnetic Wave generators, like those used in RF weapons and advanced radar detection systems.

This compact particle accelerator technology is not only of great interest with respect to space-based beam weapons, but also for short range, ground- and ship-based defense against both ICBMs and cruise missiles and particle beam systems are most effective as anti-missile weapons, packing the biggest punch with the least amount of invested energy. The very intense, speed-of-light particle beam readily penetrates deeply inside a missile where it destroys the missile from the inside out. Even at very low irradiation levels, the particle beam completely destroys the missiles electronics, preventing detonation of any nuclear warhead. The usual result is that the missile's fuel and/or chemical explosives are detonated, leading to its immediate self-destruction.

Because of these fire-power characteristics, military planners have found that the neutral particle beam technology provides a versatile system which would profoundly enhance any type of defense system, both strategic and tactical, at any stage of deployment.

Vacuum tubes and plasma rockets

The second item may come as something of a shock in the "age of the electronic chip." But actually this technology, like that of the neutral particle beam, is the basis for a new industrial revolution, based on energy density plasmas as a new medium for processing and forming of materials and composites. (This is particularly true for the electronic chip industry which is now focusing on plasma material processing technologies.) But this technology also permits one to master and apply the entire electromagnetic spectrum. The development of energy-dense plasmas for industrial processing was emphasized in the FEF's 1977 report, "Beam Weapons, the Sputnik of the 1970s."

In the mid-1970s, U.S. specialists got access to an advanced Soviet Foxbat jet aircraft. To their shock they found that the Soviets utilized what at first appeared to be ordinary radio vacuum tubes instead of the sophisticated electronic chips incorporated in U.S. aircraft. But upon detailed examination, the radio tubes turned out to be very sophisticated and had advanced performance capabilities. Also, it was found that these vacuum tubes could much more readily survive the electromagnetic effects of nuclear weapon detonations and radio frequency weapons.

The particular "vacuum tubes" discussed by *Aviation Week* are tacitrons, which are based on techniques developed in pulsed power and directed energy beam systems for greatly increasing the energy density of input electric current. These hardy tubes could survive in an environment with temperatures exceeding 1,000° Celsius. The tubes could then be used within the cores of nuclear power plants and jet engines. In the case of jet engines, this would replace the much heavier hydraulic control systems, with small electrically based control systems. But the concept is also directly applicable to more advanced industrial processing methods, such as high-temperature metal processing and reduction processes.

As recent U.S. Air Force studies have concluded, Lyndon LaRouche's 1988 assessment that very high power fusion rockets would be required for manned exploration of the inner planets is correct. The Soviets had long maintained among the world's most advanced plasma rocket R&D programs. The near-term applications of such systems consist of small, high-thrust plasma rockets for orbit transfer and mobility in orbit of satellites. The longer range systems would consist of very high power fusion rockets for the manned exploration and eventual colonization of Mars.