

**SOUTHWEST CENTER FOR ADVANCED STUDIES**

POST OFFICE BOX 30365

DALLAS, TEXAS 75230

(214) ADAMS 1-1471

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Al Mitchell, Director of  
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**OFFICE OF NAVAL RESEARCH ADDS TO FUNDING FOR PION RADIATION THERAPY PROGRAM**

Funding for additional research in the effectiveness of pion radiation has been provided by the Office of Naval Research in an extension of an existing contract with the Southwest Center for Advanced Studies.

The new funding is \$7,745, and increases the total contract amount to \$38,745.

Prof. Chaim Richman is the SCAS' investigator in the pion radiation therapy program. His research, in high-energy physics, centers on the use of an energetic particle produced by an accelerator as an added radiation treatment for human cancer. The particle is the pi-meson, usually abbreviated to pion.

The ONR funding will specifically be used to compare radiation effects in cells carrying oxygen and anoxic cells (those lacking oxygen).

Anoxic tumor cells are three times more resistant to radiation-killing than oxygen-carriers, explains Professor Richman. Overcoming this, to the point that radiation therapy does at least equal damage to oxygen-short and "healthy" tumor cells, "would save more patients," he says.

The pi-meson, drawn from the nucleus of the atom, can be aimed at tumor cells by careful control of its energy level. It produces a strong star-burst of radiation in a small target area. Biological effects, over-all, are six to eight times greater within the target cells than in surrounding healthy tissue, or in the path of the pion beam.

Professor Richman's research is also funded in part by grants from the American Cancer Society and the Atomic Energy Commission. No human treatment has been attempted as yet because no available accelerator has the needed pion output (hundreds of millions of particles a second). Such a machine should be available by 1972, when a new linear accelerator is completed at Los Alamos, N.M., including a clinical annex.