

# Pole teaches . . .

Continued from page 1

The object of the theory is to understand and predict the response of any type of detector to any type of radiation, Waligorski said.

A detector is anything that changes form or appearance when exposed to radiation. Biological detectors, like human cells, are detectors because cells die when exposed to radiation. Physical detectors include chemical compounds that glow when exposed to radiation. A photographic emulsion that is exposed by radiation is an example.

"There is no conceptual difference between biological detectors and physical detectors," Waligorski said. "It's just that biological detectors are more complicated."

Using track theory, Katz and Waligorski are attempting to explain how each detector works and how each detector's response is related to the type of radiation, he said.

## Track theory important

Track theory is important in the treatment of cancer because different types of radiation effect cancer cells differently.

"In treating cancer cells, you want to use a type of radiation that will 'kill'—that is damage so the cell can't reproduce—about 50% of the cancer cells. You also want to know how far below the skin the radiation will have its greatest killing effect," he explained.

For example, if a tumor is five inches below the skin, radiation that kills the greatest number of cells five inches

after it enters the body would be the best radiation for treatment.

Katz and Waligorski are studying heavy ion radiation because they think it would allow precise treatment of a tumor when combined with the predictions of track theory.

## Predictions accurate

Last fall tests were conducted by a research group at the Lawrence Berkeley Laboratory in Berkeley, Cal., to determine the number and depth at which human kidney cells were killed by carbon ion, neon ion, and argon ion radiation. Using track theory, Katz was able to accurately predict the outcome of the tests, Waligorski said.

Katz based his predictions on four variables: the radius of the kidney cell nucleus, the number of "sensitive targets" in the nucleus, the sensitivity of those targets to radiation, and the radius of the target.

Katz said the sensitivity targets correspond to genes within the nucleus of the cell that, when damaged by radiation, interfere with the cell's reproduction.

"The results were excellent," Katz said. "There was an excellent correspondence between the theoretical predictions and the experimental findings."

Waligorski said that work on physical detectors also is promising, because it may be possible to produce detectors that simulate biological detectors. Tests with physical detectors would save time and money because tests with biological detectors such as kidney cells are lengthy and costly.

# Smoother traffic flow goal of major changes

Major changes in procedures are in effect to ease traffic movement (before and after) UNL basketball games at the Bob Devaney Sports Center, according to Capt. Clifton Koch of the Lincoln Police Dept.

"The purpose will be to even out the flow of traffic along major arterial streets leading to the Sports Center to reduce the risk of bottlenecks and tie-ups," he said.

Koch also said the success of the new procedures depends on driver behavior more than anything else.

Motorists are urged to promptly obey instructions from officers directing traffic, he said.

"The officer is reacting to a problem ahead and out of sight of the driver but known to the officer through radio communication," he said.

Fans are encouraged not to park on streets, particularly where prohibited by signs. Police will ticket violating vehicles and will impound vehicles which interfere with traffic, he said.

Koch urges fans to "plan" their routes from the Sports Center, based on where they park.

Principal streets to and from the complex are 14th, 17th and 27th. Each of these streets permits access to major arterials leading to all points in Lincoln, to Omaha, and to western Nebraska.

Assistant Police Chief John Miller said the department has had few problems this year with game traffic control. "The success," Miller explained, "is because of new procedural changes, as well as improved weather conditions."

**Stop excusing your life away.**

Everyone has an excuse for not seeing their doctor about colorectal cancer. However, every year 82,000 men and women die of colorectal cancer in this country alone. Two out of three of these people might be saved by early detection and treatment. Two out of three.

So what is your excuse? Today you have a new, simple, practical way of providing your doctor with a stool specimen on which he can perform the guaiac test. This can detect signs of colorectal cancer in its early stages before symptoms appear. While two out of three people can be saved. Ask your doctor about a guaiac test, and stop excusing your life away.

**American Cancer Society**

THIS SPACE CONTRIBUTED AS A PUBLIC SERVICE

**P.J. McHAIR**

213 no. 14th

phone: 47E 1953  
lincoln, nebr. 68508

**DOMINO'S PIZZA**

**FREE COOKIES**

WITH PIZZA PURCHASE

There are better ways to handle a tough semester of math.

The Slimline Business Analyst-II™ for business and finance.

The Slimline TI-50™ for science and math.

## Choose the Texas Instruments calculator that's right for your major.

When you're working in a specialized field, you need a specialized calculator. That's why Texas Instruments designed the *Slimline Business Analyst-II™* for business and finance . . . and the *Slimline TI-50™* for science and math. Each provides the tailored power and the reliability you'll need as you learn to solve the problems you'll face as a professional. And each has a price you'll appreciate as a student.

### Slimline Business Analyst-II. Sleek LCD calculator with versatile business capabilities.

Solving financial problems with the *Slimline Business Analyst-II* can make working with your old calculator seem like pencil-and-paper arithmetic. The functions required to perform many common business, financial and statistical calculations are built in to help you make quick, accurate evaluations of many complex business situations.

Special financial keys are used to handle time and money problems such as compound interest, annuity payments, mortgage loans, investment yields, amortization schedules and more.

Statistical and linear regression capabilities provide the power you'll need to boil down data and automatically handle problems such as sales and earnings forecasts.

Profit margin calculations concerning cost, selling price and margin can be performed rapidly when any two of the variables are known. Other features include a four-function data register with Constant Memory™ feature that retains its contents even when the calculator is turned off. Two miniature batteries provide up to two years of operation in normal use. And TI's APD™ automatic power down feature helps prevent accidental battery drain.

The *Business Analyst-II*, with detailed owner's manual and suede-look vinyl wallet with pockets for notes, \$45.00\*.

### The Slimline TI-50 packs 60 powerful functions into a handsome, compact package.

The pocket-portable *Slimline TI-50* is a remarkably powerful LCD slide-rule calculator. Yet it's as thin as a pencil and weighs only three ounces!

Its 60 versatile functions can help you handle a wide range of college math problems. Capabilities include common and

natural logarithms. Six trigonometric operations that can be performed in three angular modes (degrees, radians or grads). Two constant memories that retain their contents even when the calculator is turned off. And more.

Seven built-in statistical functions simplify the task of boiling down large sets of data points so you can perform accurate analyses and draw reliable conclusions.

The power of the *Slimline TI-50* is made easy to use by TI's AOS™ algebraic operating system, which provides 15 sets of parentheses and accepts up to four pending operations. That means you can enter most problems just as they're written, left to right.

Two miniature batteries provide up to two years of normal operation. And TI's APD™ automatic power down feature helps prevent accidental battery drain.

The *Slimline TI-50* includes a detailed owner's manual and a durable vinyl wallet, \$40.00\*.

Make sure your next calculator has the specialized power to handle the problems unique to your major. See the *Business Analyst-II* and the *Slimline TI-50* at your college bookstore or other TI dealer today.

Texas Instruments technology—bringing affordable electronics to your fingertips.

**TEXAS INSTRUMENTS**  
INCORPORATED

\*U.S. suggested retail price  
© 1980 Texas Instruments Incorporated