

*The Research Scholars in Residence Program at Cal Poly  
is pleased to present a lecture for the University and Local Community*

# **Development of** **ROBOTS** **for Inspecting Buried Gas Pipelines**

*A presentation by George Alers, Cal Poly Research Scholar in Residence*

**Tuesday, May 5, 4:00pm**  
**Cal Poly Kennedy Library, Bldg. 35, Room 202A**

Some of our country's more than 200,000 miles of underground, high-pressure, natural gas pipelines have been in service for well over 60 years and can be expected to suffer corrosion that can cause leaks. Robots, which are blown through the lines with gas, have sensors that interrogate a small section of the pipe wall and record the position of any unusual responses in an onboard memory. After runs of up to 60 miles in length, the robot is captured in a special trap and the contents of its memory are dumped into a larger computer that is programmed to analyze the responses and make a judgment as to the probable shape and depth of the anomaly. Then, the pipeline owner can make the all-important decision to dig up a section of pipeline and repair the potential leak. During the past 30 years, several research laboratories in the US and abroad wrestled with problems related to the use of these sensors that detect ultrasonic waves in the dry environment of a gas pipeline at speeds up to 30 mph. Dr. Aler's talk will discuss how Cal Poly graduates found solutions to some of the problems, and also current uses of this technology.

**Light refreshments  
will be served**

*George Alers studied physics at Rice University and at the University of Iowa where he got his Ph.D. in 1954. His focus has been in materials science using ultrasonics to measure the elastic and anelastic properties of metals under conditions of high pressure, low temperature and large magnetic fields. These studies were performed in the basic research laboratories of Westinghouse, Ford Motor Company, Rockwell International and at the National Institute of Science and Technology. He has been an active member of the American Physical Society, the AIME and the IEEE, where he was Chairman of the Ultrasonics Group and helped organize several international technical symposia. Now retired, he has remained active as the Scientist and Historian for a small ultrasonic inspection company here in San Luis Obispo.*

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