

ACOUSTICAL · SOCIETY · OF · AMERICA



NARRAGANSETT CHAPTER

Narragansett Chapter Winter Meeting

Tuesday, 27 January 2004

(Please sign up by 20 January 2004)

**Arturo Joe's
Mariner Square
140 Point Judith Road
Narragansett, RI 02882
(401) 789-3230
www.arturojoesri.com**

Dr. Harold Robinson

Materials Research Senior Scientist

Naval Undersea Warfare Center, Newport, RI

Single Crystal Materials: A Potential Revolution for Ultrasonics and Sonar

Over the past two decades, materials researchers and device designers have been investigating the properties of and applications for a new class of piezoelectric materials, ferroelectric single crystals. These crystals offer a unique combination of characteristics, such as extremely high electrical-to-mechanical energy conversion (coupling) factors of 90% or more and peak strain levels six times higher than PZT ceramics, that promise to revolutionize sonar and actuator systems. Because of this combination of properties, broadband sensor/projector systems can be designed that simultaneously offer 10 dB higher sensitivity/source levels and a 50% size reduction compared to current ceramic based systems. This talk will review the different types of ferroelectric single crystals and their production methods. The material properties of these crystals, and their impact on transducer and system design, will be discussed. Finally, device demonstrations from the medical ultrasonics, actuation and sonar communities that illustrate the tremendous potential of these materials will be presented.

6:00 - 7:00	Social Hour (optional)
7:00 - 8:00	Dinner (optional)
8:00 - 9:00	Presentation by Dr. Harold Robinson

DINNER

Menu entrée choices:

- Chicken Balsamic
- Shrimp and Broccoli Alfredo
- Penne Pizziola (vegetarian)

Dinners include: appetizer, mixed exotic green salad, dessert, and soda, coffee or tea.

Dinner will be served FAMILY STYLE – all three entrées will be placed on the table and selection is made from these dishes.

All selections are \$18.00 with payment at the door. Students are half price.

Guests are always most welcome.

Attendance response required by 20 January 2004

(Required to properly allow set-up at restaurant)

Frank A. Tito
Office: 401-832-5090

or

Sally Sutherland-Pietrzak
Office: 401-832-8735

E-mail: titofa@npt.nuwc.navy.mil

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DIRECTIONS

Directions:

Arturo Joe's
Mariner Square
140 Pt. Judith Road
Narragansett, RI 02882
(401) 789-3230
www.arturojoesri.com

From Route 1 heading South:

- After passing exits for Wakefield, Route 1 curves to the right or west
- Take the Point Judith/ Narragansett exit
- Make a right at the end of the ramp (you are now on Woodruff Ave)
- Make a right at the second light (there is a large shopping center on your right) (Now you are on Route 108, Point Judith Road)
- Just past the entrance to the Salt Pond shopping center, make a left into Mariner's Square. Arturo Joe's is facing the street.

From the South or West:

- From Route 1 take the Point Judith/ Narragansett exit
 - Make a right at the end of the ramp (you are now on Woodruff Ave)
 - Make a right at the second light (there is a large shopping center on your right) (Now you are on Route 108, Point Judith Road)
 - Just past the entrance to the Salt Pond shopping center, make a left into Mariner's Square. Arturo Joe's is facing the street.
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