



Register now for
CSA Short Courses
before the 2012 Applied
Superconductivity Conference



Sunday, October 7, 2012
Oregon Convention Center, Portland, OR

Dr. John Weisend II, NSCL, Michigan State University

Cryogenics for Superconductivity

Morning (Half Day) Short Course: 8:00 AM - 12:00 PM

The successful application of superconductivity requires that the devices be kept at their operating temperatures via a cryogenic cooling system. There are a variety of ways to cool superconductors and each has advantages and disadvantages. The approach taken depends on issues such as the required temperature, expected heat load, number of devices, physical geometry, cost and expected lifetime of the device. This course surveys the various methods of cooling superconductors, describing their governing equations, design aspects, advantages and disadvantages. It also provides a brief overview of cryogenic insulation and refrigeration techniques as well as cryogenic safety. Extensive use is made of examples of the cooling of both superconducting RF cavities and superconducting magnet systems in the areas of basic physics research, fusion energy and MRI systems. The emphasis will be on large superconducting systems as opposed to the cooling of superconducting electronics. Cooling via small cryocoolers will be briefly discussed.

Dr. Ray Radebaugh, ret. NIST Boulder

Refrigeration for Superconducting Systems

Afternoon (Half Day) Short Course: 1:00 PM - 5:00 PM

Practical superconductors must be kept at temperatures below about 80K. This half-day short course reviews the various refrigeration methods currently used to provide these temperatures. The course is limited primarily to closed-cycle systems, known as cryocoolers, although their use in liquefaction is also included in the course. Cycles discussed in the course include Joule-Thomson, Brayton, Claude, Stirling, Gifford-McMahon and pulse tube systems. Millikelvin refrigeration techniques for use in cooling some superconducting detectors will be briefly covered. Refrigeration systems for small superconducting electronics as well as large superconducting magnets are considered.

Name (Please print) _____ Name on Badge _____

Title (i.e., Dr./Prof.) _____ Affiliation _____

Street Address _____

State/Province _____ Country _____ Zip Code _____

Email _____ Phone _____ Fax _____

Which short course will you be attending? Morning Afternoon Both

Registration fees (in U.S. dollars)

Please choose one:

- Early Registration (on or before September 7, 2012) \$175 for each course
- Regular Registration (after September 7, 2012): \$225 for each course
- Student Registration (with valid ID): \$115 for each course

Or register for both courses:

- Early Registration (on or before September 7, 2012) \$325
- Regular Registration (after September 7, 2012): \$425
- Student Registration (with valid ID): \$220

Online registration for CSA Short Courses will be available until October 3, 2012. On-site registration will be available; however, on-site registrants are not guaranteed a copy of course materials, though it may be possible to obtain them later. Course registration fees are non-refundable; however, a substitute registrant will be accepted.

Please mail form to:

CSA
218 Lake Street
Oak Park IL 60302
or FAX to 708-383-9337.

Online registration is available at <http://2csa.us/4r>

Payment Options (Please print):

- Check (Must be in U.S. dollars and drawn on a U.S. bank; no bank transfers accepted)

Please make checks payable to Cryogenic Society of America, Inc.

Credit Card American Express Visa MasterCard Discover

Card# _____ Exp. Date (MM/YY) _____ CW Code _____

Billing Address (if different from above):

Street Address: _____ City _____ State/Province/Zip _____

Name on Card _____ Signature _____