Vacuum Society meets in Boston

The 24th National Vacuum Symposium will feature poster sessions on thin films and surface science, specialized short courses and the Welch Award presentation to Charles B. Duke.

Bruce C. Carr

Boston is the site for the 24th National Vacuum Symposium of the American Vacuum Society, which will be held 8–11 November at the Sheraton-Boston Hotel. A technical exhibit will be presented in the John B. Hynes Civic Auditorium, which is adjacent to the hotel. These symposium facilities are both part of the Prudential Center complex, centrally located in downtown Boston on Boylston Street.

Over 1200 scientists and engineers are expected to attend this four-day meeting, at which some 225 papers will be given. The papers have been organized into 22 sessions, with three being run in parallel each morning and afternoon (except Friday) of the conference. Two divisions of the American Vacuum Society—surface science and thin films—will sponsor poster sessions during the meeting, and short courses in vacuum science and technology will also be held.

Registration fees for the symposium are as follows: $45 per week (AVS members), $65 per week (non-members) and $5 per week for full-time students; registration for a single day is $20.

Short courses

A four-and-a-half day basic Vacuum Technology course organized in conjunction with the meeting will begin the day before the official start, on 7 November. The course will cover vacuum technology from fundamental theory through state-of-the-art concepts. In addition, eight one-day specialized courses will include introductory material, theory, equipment and applications on the following topics:

- Sputtering technology,
- Partial-pressure analysis,
- Leak detection,
- Microcircuit thin-film technology,
- Surface analysis (two-day course),
- Fundamentals of evaporation,
- Freeze drying and
- Applied thin-film optics.

These courses are intended for anyone working with or interested in vacuum science and technology, including laboratory technicians, production-equipment operators, maintenance personnel and students.

Size of the courses is limited and, although the deadline is 31 October, people may register at the meeting for any remaining places. Information on the courses and application forms may be obtained from Nancy Hammond, AVS Executive Secretary, 335 East 45th Street, New York, N.Y. 10017 (tel 212 661-9404).

DUKE

Society luncheon

On Thursday, 10 November, a luncheon will be held for all meeting participants who wish to attend; tickets are $7 apiece. This date has been reserved for the presentation of the eighth annual Medard W. Welch Award to Charles B. Duke, and also for the announcement of the new Society officers. Leonard C. Beavis (Sandia Laboratories) will succeed Richard W. Hoffman (Case Western Reserve University) to the office of president. The new president-elect, who is being chosen by mail ballot this month, will be announced and installed in Beavis's former position.

Duke will receive the Welch Award, including a solid gold medal and $1000, for "far-reaching theoretical contributions to surface science and solid-state physics in the areas of low-energy electron diffraction, electron tunneling and the electronic structure of large organic molecules."

Duke works for the Webster Research Center of the Xerox Corp in Rochester, N.Y., as a research fellow and as the manager of a new program there, molecular and organic-materials research. Since 1972 he has been adjunct professor in the department of physics and astronomy at the University of Rochester. He is currently serving a three-year term (1976–79) as a member of the Governing Board of the American Institute of Physics. Following the Society luncheon, Duke will present a paper entitled "Electron-Solid Interactions: Their Nature and Consequences."

He earned his doctorate in theoretical

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physics at Princeton University in 1963 and went to work for the General Electric Research and Development Center in Schenectady, N.Y., as a staff member in the physics department. He left GE in 1969 to become a professor of physics at the University of Illinois and, from 1969 to 1972, he was the coordinator of the University of Illinois scientific laboratory. In 1973 Duke joined the staff of the Webster Research Center.

Three AVS divisions have planned sessions with invited speakers for each day of the meeting. Among the highlights of these sessions will be the following speakers and papers.

Invited sessions

Tuesday—John A. Thornton of Telic Corp will present a paper on "Magnetron Sputtering: Basic Physics and Applications to Cylindrical Magnetrons;" a Symposium on Surface-Structure Determination, moderated by William H. Weinberg (California Institute of Technology), will feature Franco Jona of the State University of New York and L. C. Feldman of Bell Laboratories, among others; and Joseph E. Greene of the University of Illinois will speak on "Optical Spectroscopy for Glow Discharge Sputtering Diagnostics and Process Control" in the session Thin-Film Deposition Diagnostics.

Wednesday—In the morning session on Preparation and Properties of Thin Films, Leo Esaki (IBM Thomas J. Watson Research Center) will give a talk, "New Semiconductor Heterostructures" and Esther Krikorian (General Dynamics Corp) will address the "Optical Properties of Sputtered Films;" and a vacuum-

Sessions and invited speakers

	am	pm	vacuum technology	thin films	surface science
Tuesday	8:30				Surface Characterization *Ibach*
	9:00		Vacuum Microbalance *Poulis*	Magnetron Sputtering and Plasma Diagnostics *Thornton* and *Clements.*	
		2:00	General Vacuum Science and Technology	Thin Film Deposition Diagnostics *Greene.*	Symposium on Surface Structure Determination *Jona, Davenport, Pandey* and *Feldman*
		7:30	New Products Seminar		
Wednesday	8:30		Ion–Material Interactions I *Jones*		Surface Metallurgy *McMahon* and *Burton*
	9:00			Preparation and Properties of Thin Films *Esaki* and *Krikorian.*	
		3:00	Outgassing and Gauging *Stowers*		
Thursday	8:30		Ion–Material Interactions 2 *Gauster*		Surface Reactions *Johnson*
	9:00			Electrical Properties of Thin Films & Thin Film Processes *Kaufman.*	
		2:00		Scale-up of Thin Film Processes to Manufacturing *Hughes, Gillery* and *Hansen.*	Electron Spectroscopy and Semiconductor Surfaces *Lang*
		2:00		Poster Session.	Poster Session
Friday	8:30				Chemisorption and Catalysis
	9:00		CTR Pumping *Abel* and *Parker*	Reactive Ion Etching *Libby, Coburn* and *Lehmann.*	

technology session on Outgassing and Gauging will include a paper, "Advances in Cleaning Metal and Glass Surfaces to Mirror-Level Cleanliness," by Irving Stowers of the Lawrence Livermore Laboratory.

Thursday—Norton D. Lang (IBM Watson Research Center) will speak on "Atomic Chemisorption on Simple Metals: Chemical Trends and Core-Hole Relaxation Effects," during a session on Electron Spectroscopy and Semiconductor Surfaces, and in the second of a two-part session on Ion-Material Interactions, W. B. Gauster (Sandia Laboratories) will address the topic of "Studies of Radiation Damage Using Positron Annihilation."

Friday—Sessions will be held only in the morning of the last day of the meeting. Ron Parker (Massachusetts Institute of Technology) and Bruce Abel (Princeton Plasma Physics Laboratory) will both present invited papers at a session on Pumping for Controlled Thermonuclear Reactors.

Vacuum show

The technical exhibit for the symposium will be located on the second floor of the Hynes Auditorium, which may be entered through the third floor of the Sheraton-Boston Hotel. This will be the largest show in the history of the Society with 75 exhibitors occupying 104 booths. Show hours are from noon to 6 pm on Tuesday, 10 am to 5 pm on Wednesday and from 10 am to 4 pm on Thursday. A snack bar and lounge are located in the exhibit hall.

At press date, the following companies indicated they will be displaying new products: Airco Temescal, Central Scientific, Commonwealth Scientific, CVC, Dalton Electric Heating, EM Labs, Ferrofluidics, Inficon Leybold-Heraeus, Kevex Corp, Kimball Physics, Kinney, MKS Instruments, Molytek, Physical Electronics, Sargent Welch, Thermionics, 3M Co, VRMC, Varian and Veeco Instruments.

A spouses' program has been organized for those people accompanying conference participants. Information may be obtained in the registration area.

An observation desk is located on the top of the Prudential Tower, which can provide a brief, scenic diversion by simply taking an elevator from the meeting area. Newbury Street runs parallel to Boylston Street (where the Sheraton-Boston Hotel is located) and has some of the most interesting galleries and shops in the city. Cambridge is located across the Charles River, accessible in 10 or 15 minutes by public transportation: There one can visit Harvard University, MIT, or the science museum, which includes a planetarium. Serious tourists should be sure not to miss the many historic attractions of the city—Faneuil Hall, Beacon Hill, Paul Revere's House, the Granary burial ground and the Boston Common and Public Gardens. □