

CONCORDIA COLLEGE

Department of Chemistry

presents the:

2003 Werth Lecture



Dr. Dennis C. Johnson
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Oxidative Degradation of Organic Wastes Using Electricity

MAIN LECTURE, Jones 212S, Thursday, January 30, 2003, 8 p.m.

Thermal energy in the presence of dioxygen (O_2) is commonly applied to achieve oxidative degradation of organic wastes. This technology, commonly called thermochemical incineration (TCI), is difficult to control, and undesirable products of partial incineration can result. Furthermore, TCI is not easily and safely applied to small quantities of organic wastes at their point source, e.g., in the laboratory. An alternate technology is proposed for direct oxidative degradation of organic wastes based on the use of electrochemical energy. The fundamental basis of electrochemical incineration (ECI) is described and illustrated for several organic compounds. An alternate procedure to direct ECI is indirect ECI in which oxidative degradation is achieved by a strong oxidizing agent, e.g., ozone (O_3) generated by anodic degradation of H_2O . The basis of this procedure also is described and typical applications identified.

Are You Thinking of Becoming a Chemist? Now What?

CHEMISTRY CAREERS SESSION, Ivers 386, Friday, January 31, 2003, 3:30 p.m.

Know Yourself: What activities bring you joy? What are your scholastic aptitudes? What courses do you consider fun? Which of your achievements has brought you greatest satisfaction? If you knew you couldn't fail, what would be your dream career?

Consider Alternatives: What are the pluses and minuses of educational versus industrial employment? What are your options if you stop your educational program with the B.A./B.S. degree? What are your options if you obtain M.S. or Ph.D. degrees?

Develop Your Game Plan: What courses are recommended to support my dream career? What is the procedure for selecting a graduate school? Is post-graduate study important? What is an appropriate time to begin looking for employment? How should you conduct yourself in job interviews?



Dr. Richard G. Werth began teaching at Concordia in 1950 after completing his Ph.D. in chemistry at the University of Wisconsin. He worked as a visiting scientist at Cornell University, Ithaca, N.Y.; the Oak Ridge National Laboratory in Tennessee; and the University of Iowa's hygienic laboratory in Iowa City. Before coming to Concordia, he was a research chemist for E.I. DuPont de Nemours in Niagara Falls, N.Y., and served in the Navy from 1944 to 1946. He was chosen in 1972 as an Outstanding Educator of America for his civic and professional achievements. He retired in 1990 and died in 1993.

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