Faculty Distinctions

Colton Garners 1999 AIChE Division Award

Professor Clark Colton was recently named recipient of the AIChE's 1999 Food, Pharmaceutical and Bioengineering Division Award. This award recognizes an individual's outstanding chemical engineering contribution in the food, pharmaceutical and/or bioengineering industry. Their contributions...
may have been made in industry, government, or academic areas, or with other organizations. Congratulations to Professor Colton on this distinguished achievement!

For a preview of the agenda for Professor Colton's upcoming presentation on *Membranes in Biomedical Applications*, visit [http://www.aiche.org/docs/meetapp99/programming/techprogram/sessions/t1016.htm](http://www.aiche.org/docs/meetapp99/programming/techprogram/sessions/t1016.htm)

**Brenner Wins AIChE's 1999 Lewis Award**

**Professor Howard Brenner** was recently honored by the AIChE with the presentation of its distinguished Lewis Award. The award is named for former MIT ChemE faculty member (1910-1948) Warren K. "Doc" Lewis, one of the pioneers of the chemical engineering profession. Further details will be available in the September Course X News! Congratulations to Professor Brenner on this exemplary recognition!

For more about the AIChE's W.K. Lewis Award, visit [http://www.aiche.org/docs/awards/awarddtl.asp?AwardID=62](http://www.aiche.org/docs/awards/awarddtl.asp?AwardID=62)

**Evans Receives 1999 AIChE Cheme Practice Award**

Former ChemE professor **Lawrence Evans** has been selected as the recipient of the AIChE's 1999 Award for Chemical Engineering Practice. Professor Evans left the Department to establish AspenTech, a successful Cambridge (MA) software company. This award was established to recognize outstanding chemical engineering contributions in the industrial practice of the profession. Congratulations to Professor Evans on this prominent recognition!

For more about AIChE's Award for ChemE Practice, visit [http://www.aiche.org/docs/awards/awarddtl.asp?AwardID=57](http://www.aiche.org/docs/awards/awarddtl.asp?AwardID=57)

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**Department News**

**Another Conquest For Cooney and Son!**

At 7:29 AM local time, on June 29th, **Professor Charles Cooney** and his son **Brendan** were successful in reaching the summit of Mt. Blanc in the French Alps. After leaving their base at 3,800 meters at about 2:15 AM, they reported a great climb (by the light of a full moon, no less!) and witnessed a spectacular sunrise from the summit of the highest peak in Western Europe. On the descent, they ran into a snow
squall with nearly white-out conditions, but returned in good spirits! This accomplishment represents the latest in a series of mountaineering conquests for Professor Cooney and Brendan: other world-class peaks they have scaled include Mt. Ranier in Washington and Alaska's Mt. McKinley. Congratulations and welcome home to the Cooney expedition!

**Dr. Susana Luque Here Through August**

**Dr. Susana Luque**, assistant professor at the University of Ovieda, will be visiting the department from July 16th through August 31st. While preparing for tenure, Susana will be working closely with **Professor Greg McRae** and his group on process design and simulation. Please welcome Dr. Luque to ChemE! Her contact information is:

Office: 66-060
Phone: 253-5973

**Maria Franco to Depart ASO**

**Maria Franco**, Personnel Administrator for DMSE, ChemE CBE and Archaeology, is resigning effective August 31, to pursue a career in Early Childhood Education. She has been a real asset to the Departments and to the Administrative Service Organization, and will be missed for her patience and thoroughness, among many outstanding qualities. Sorry to see her go! Well-wishers may contact her at mtf@mit.edu/3-4563.

**MIT Library News**

The *Chemical & Engineering News* from ACS is back as an online journal at: [http://libraries.mit.edu/science/Subjects/Chemistry/ejournal.html](http://libraries.mit.edu/science/Subjects/Chemistry/ejournal.html)


For further information please contact Chemistry Librarian, Erja Kajosalo at:

Office: 14S-134
EMail: kajosalo@mit.edu
Phone: 253-9795
MIT Visiting Scholar Opportunities

Summer English Course Offered for Visitors

The Department of Foreign Languages and Literatures is again offering an eight-week summer course in English as a second language for international visiting scholars.

The course is aimed at helping the scholars with the oral skills they will need to communicate effectively in their new academic environment. It will also provide them with useful language for dealing with survival needs (arranging housing, making purchases, setting up services) and interacting socially.

When: Each Tuesday and Thursday from 2:00 PM to 4:00 PM between July 5th and July 29th
Fee: $450 (non-credit only)

For further information, contact Patricia Brennecke, pbrennece@mit.edu, x3-2647, Room 14N-229A.

Pre-Doctoral Opportunities

Student Awards

Electrochemical Engineering and Applied Electrochemistry Industrial Electrolysis and Electrochemical Engineering Division The Electrochemical Society, Inc.

Descriptions

The Industrial Electrolysis & Electrochemical Engineering Division offers two awards to students engaged in research in the fields of electrochemical engineering and applied electrochemistry:

1. The H.H. Dow Memorial Student Achievement Award has been endowed by the Dow Chemical Company Foundation in honor of H.H. Dow, a prolific inventor and tenacious businessman. H.H. Dow was one of the principal organizers and a charter member of The Electrochemical Society.
2. The Division also sponsors a Student Achievement Award.
Each award shall consist of an appropriate certificate as well as a check in the amount of $1,000, payable to the recipient. The awards shall be given each year, provided that qualified applicants are available. Either award is to be used to pay for expenses associated with the recipient's education or research project: tuition, books, equipment or supplies.

Eligibility: To be eligible to receive an award, candidates must be enrolled in a college or university or have been accepted for enrollment.

Notification: Award recipients shall be notified by the Chairman of the Industrial Electrolysis and Electrochemical Engineering Division by November 30, 1999. Recipients shall be requested, as a condition of the award, to submit to the Division Chairman a written summary of research accomplished during the year the award was presented. The Chairman will have the option of distributing these summaries to members of the Division or submitting them to the Editor of the Journal of the Electrochemical Society for consideration of publication.

Application Deadline: Deadline for receipt of completed applications is September 15, 1999.

Application Procedures: The application for the award must include:

1. Transcripts of all post-secondary school academic work
2. Description of the research project to be engaged in during the next year
3. Statement describing the relationship of the project to the field of electrochemical engineering or applied electrochemistry
4. Biography, resume or curriculum vitae
5. Letter of recommendation from the applicant's research supervisor

The description (2) and statement (3) should be no longer than two double-spaced typewritten pages. No application form is necessary. Each applicant will be considered for both awards.

All application materials are to be sent to:
Dr. Richard D. Varjian
The Dow Chemical Company
1776 Building
Midland, MI 48674
Phone: (517) 636-6557
Fax: (517) 636-4917
EMail: rdvarjian@dow.com

For more about these and other ES awards, visit http://electrochem.org/awards.html

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Post-Doctoral Opportunities

1999 Bayer AG Postdoc Workshop
Berkeley, California
September 3-5, 1999

Eligibility: European scientists currently in the US and Canada currently doing postdoctoral research in polymer/materials science.

Topic: This workshop will be an excellent occasion to discuss highlights from Bayer's recent research in polymers and materials science and to explore specific job opportunities. Over the next two years, Bayer AG will offer several challenging positions in its materials related business units and in Central R & D. Bayer intends to recruit scientists with a particularly strong background in polymer chemistry with a focus on synthesis, characterization and/or processing as well as physicists who are actively involved in materials science.

Workshop Venue: Bayer's Biotechnology Research Center in Berkeley California will be the host of this workshop. Located close to San Francisco it provides a stimulating environment for scientific discussions and an open exchange about career opportunities. Participants will have time to make personal contacts with Bayer representatives from the Polymers Chemistry and Central Research Divisions while visiting the San Francisco Bay Area and experiencing its unique cuisine.

Application Procedure: Interested individuals with an excellent background in polymer chemistry or materials science should send their resumes, copies of degrees granted from high school through Ph.D. with record of grades, abstracts of scientific publications, and other supporting material to the following address:

Dr. Harold Pielartzik
Central R & D, Bayer AG
Rheinuferstraße 7-9
D-47829 Krefeld
Phone: (011) 49-2151-88-5790
Fax: (011) 49-2151-88-7703
EMail: postdoc-materials@bayer-ag.de

Tissue Engineering (2)
National University of Singapore
Singapore
Two tissue engineering projects are currently underway. For each, one post-doc is needed, primarily to take charge of cell culture work.

1. **Application of a Bioresorbable 3-D Scaffold, Mesenchymal Stem Cells and Bone Growth Factors for Tissue Engineering an Articular Bone/Cartilage Interphase**

   Summary: A great number of surgical treatment concepts have been applied, with varying success in animal studies and clinical trials, to repair degenerated articular cartilage and subchondral bone. Tissue engineering has emerged as a potentially new therapy in which synthetic materials, seeded with appropriate cell populations, are grown *in vitro* and subsequently implanted in patients. Investigators have found that cartilage can be tissue engineered into porous scaffolds made of collagen, collagen and hyaluronan, hydroxyapatite as well as polyglycolic and polylactic acid. However, none of those matrix designs could be securely fixated under load-bearing conditions, to the osteochondral bone, which is a conditio sine qua non from a clinical point of view. Hence, the scaffold materials and architectures did not possess the ideal chemical and physical properties required for tissue engineering a 3-D articular bone/cartilage interphase. In addition, investigators seeking advanced scaffold systems are not severely limited in candidate biomaterials but by sophisticated, reproducible and economical manufacturing and processing technologies.

   It is the objective of this project to develop a cell culture system which allows the tissue engineering of cartilage attached to subchondral bone. We will also attempt to evaluate in vivo the efficacy of both a articular bone/cartilage interphase tissue engineered by applying a bioresorbable 3-D scaffold, mesenchymal stem cells and bone growth factors in a rabbit model.

2. **Tissue Engineered Tri-leaflet Heart Valve Using a Sheep Model**

   Summary: Many research institutions have, at one stage or another, been involved in the development, fabrication and/or testing of heart valve prostheses; biological, mechanical or otherwise. The research interest in heart valve prostheses, stems from the need for such devices brought about by the increasing incidences of valvular failure necessitating the need for valve replacement. However, due to the limitations of current biological and mechanical replacement valves (e.g. calcification, biological incompatibility, immunological reactions and constant anti-coagulant treatment) there exists a need for a heart valve that not only preserves the physiologic functions as well as the 3-D geometrical features of the original valve but also one that is able to survive and thrive within the host body with good flow characteristics. Current research trends in tissue engineering indicate the potential of cell seeding techniques in promoting biocompatibility and reducing host immune response. This project thus aims to incorporate cell seeding techniques in the development and fabrication of a stentless tissue engineered heart valves from a functional three-dimensional (3-D) scaffold construct. The research will be unprecedented in that it will be the first of its kind to develop a complete one-piece tissue engineered tri-leaflet valve prosthesis that mimics the natural heart valve. A sheep's model will be used in the first instance. The unique
features of these heart valves is that it would be developed from living cells, possess physical characteristics similar to that of natural valves and be able to grow and integrate with the surrounding host tissue.

To apply, please contact:
Dietmar W. Hutmacher
Laboratory for Biomedical Engineering (LBME)
Centre for Biomedical Applications and Technology (BIOMAT)
E3 05-16, Mechanical and Production Engineering Department
National University of Singapore
10 Kent Ridge Crescent
SINGAPORE 119260
Phone: (011) 65-874-5105/3100
Fax: (011) 65-777-3537
EMail: mpedwh@nus.edu.sg

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Industrial Opportunities

Environmental Consultants (2+)
Environmental Resources Management
New Orleans Louisiana
Houston, Texas
Dallas, Texas
Austin, Texas

Qualifications: We are searching for the nation's top graduates who have chosen to pursue a career in an environmental field. Our interest is to hire those individuals who have demonstrated their potential through high grades and a rigorous curriculum in engineering, geology or environmental studies. Currently, we are interviewing Master's Degree candidates who graduated in Spring of 99 and are ready for a full-time career opportunity in consulting.

About Environmental Resources Management: The ERM Group is a global environmental, health and safety consulting firm that was founded in 1978. We currently have more than 100 offices in 24 countries throughout North and South America, Europe and the Asia Pacific Region constituting a unique global network of environmental specialists. Together we total more than 3,000 professionals who provide policy, management, and technical advice on environmental issues. The ERM Group offers practical operational solutions to government agencies and private industries throughout the world in the areas of air, wastewater, and hazardous waste. Our team of professionals has been built under a set of
guiding principles that include technical excellence, professional integrity, and a commitment to providing practical and cost-effective environmental solutions to our clients.

Application Procedure: If you are interested in being considered for an entry-level position with the ERM Group, you may apply by contacting our hiring partner, Fusion Staffing Services. Fusion is a national staffing company that specializes in the environmental health and safety industry and is responsible for ERM's recruiting needs in the Southwest region of the United States. For immediate consideration, please send your resume and college transcripts to (fax/EMail preferred):

Trevor Diehl
Fusion Staffing Services
16300 Katy Freeway, Suite 300
Houston, TX 77094
Phone: (281) 578-2800
Fax: (281) 578-2886
EMail: fusionsw@earthlink.net

For more information about Fusion Staffing Services, visit http://www.fusionstaffing.com

For more information about ERM, visit http://www.erm.com

**Analytical Chemist/Department Head**
Leading Pharmaceutical Firm
Region: North Carolina (US)

Qualifications: The candidate will possess a Ph.D. in Analytical Chemistry, Chemistry, Biochemistry or related field with relevant pharmaceutical or bio-tech experience. This person should possess strong leadership, interpersonal, verbal and written communication skills and be capable of directing the work of a staff in a wide range of scientific expertise.

Responsibilities: Seeking a Scientist who will lead a department of Analytical Chemistry. The candidate will be responsible for performance planning, employee development and performance reviews of department members. This person will also make recommendations about capital equipment and staffing levels for the department.

*About the Firm/Department*
Our client is a leading pharmaceutical firm with research facilities in North Carolina and can provide excellent benefits (health insurance, dental, and vision plan, paid vacation and more). A high-impact, high-profile position with excellent opportunity for advancement. The department develops and implements analytical technology in support of Research, including large and small molecule mass spectrometry, NMR spectroscopy, separations, optical spectroscopy, protein sequencing and characterization of post-translational modifications and proteomics.
Application Procedure: Please contact: Shane Smith
Diedre Moire Corporation
Phone: (609) 584-9000 ext. 218
Fax: (609) 584-9575
EMail: 915608@candseek.com

**Associate Research Scientist**
Leading Biotech Firm
Region: Northeastern US

Qualifications: We are seeking a B.S./M.S. -level scientist with 2+ years experience in a pharmaceutical or biotech company involved in clinical manufacturing. Experience in fermentation, downstream processing, GMP's and scale-up are required, as is a working knowledge of protein purification. Ultrafiltration/Microfiltration and SOP writing is a plus. Additional skills needed: tissue culture; bioreactor operation; asceptic technique; column chromatography.

About the firm: We are a leading biotech company involved in the development of novel therapeutics and vaccines for the treatment of cancer, HIV and diseases of the immune system. We offer an outstanding opportunity to work with leading scientists in the areas of cancer, virology and immunology. In addition, we offer an excellent package including competitive salary and outstanding benefits that include stock options, ESOP, 401K and tuition reimbursement.

Application Procedure: Please contact:

Larry Chiaravallo
Diedre Moire Corporation
Phone: (609) 584-9000 ext. 216
Fax: (609) 584-9575
EMail: 915603@candseek.com

**Analytical Chemists (2+)**
Leading Developer of Therapeutics/Diagnostics
Region: Mid-Atlantic States (US)

Qualifications: The candidate will have an M.S. (analytical chemistry), pharmaceutical sciences or a closely-related discipline and 4+ years, B.S. and 6+ years relevant experience in the pharmaceutical industry. Experience with such analytical techniques as chromatography (HPLC, GC) spectroscopy (UV, IR) and knowledge of cGMP’s and good laboratory techniques is required.

Responsibilities: We are seeking several analytical chemists to support developmental efforts. The individual will provide methods, development, validation and analytical support. In addition, they will
prepare detailed reports of experiments and SOP's.

Compensation: We offer a competitive package including benefits and relocation.

Application Procedure: Please contact:

Larry Chiaravallo  
Diedre Moire Corporation  
Phone: (609) 584-9000 ext. 216  
Fax: (609) 584-9575  
EMail: 915603@candseek.com

Research Associate  
Leading Drug Developer

Qualifications: We are currently seeking a research associate at the B.S./M.S. level with 2 years experience in human or mammalian cell culture techniques including organ harvesting and performing immunology techniques including elisa, proliferation and migration assays.

Responsibilities: You will be an integral part of the discovery efforts of novel therapeutics.

About the firm: We are a leading developer of anti-angiogenic drugs used in the treatment of cancer, rheumatoid arthritis, and other diseases. We offer an outstanding package including excellent benefits and stock options as well as the opportunity to work in a dynamic, entrepreneurial environment on the cutting edge of therapeutic discoveries.

To apply, please EMai your inquiry to 915603@candseek.com.

Research Scientist  
Leading R & D Company  
Region: Westchester County, NY

Qualifications: We are seeking a Research Scientist at the B.S./M.S. level with 2 years experience in fermentation, process development and scale up, downstream processing and cGMP's. Additional exposure to protein purification, ultrafiltration/microfiltration and SOP writing a plus.

About the Firm: We are a leading research and development company discovering unique and effective therapies and vaccines for conditions ranging from HIV to melanoma and other cancers. We offer an outstanding package including excellent benefits and the opportunity to work in a dynamic, entrepreneurial environment on the cutting edge of therapeutic discoveries.
Quality Engineer
Leading Producer of Life Science Research Products
Region: Mid-Atlantic State

Qualifications: The candidate must possess a minimum of a B.S. degree in Statistics and two years of industrial experience in a Quality role, within a biotech, pharmaceutical or related industry.

Responsibilities: We are seeking a Quality Engineer to design and conduct quality measurements including design of experiments, regression testing, data analysis, stability studies, etc.

About the firm: A global leader in the production of products used in life science research. We offer a competitive salary, world-class benefits, bonus plan and a chance to work on a dynamic team who truly values their Human Resource.

Application Procedure: Please contact:

Larry Chiaravallo
Diedre Moire Corporation
Phone: (609) 584-9000 ext. 216
Fax: (609) 584-9575
EMail: 915603@candseek.com

Materials Scientists/Process Engineers
Imation
Oakdale, Minnesota

Materials Scientists
We are seeking Materials Scientists who can formulate polymeric coatings containing pigments and develop the understanding of pigment-binder interactions and its influence on product properties.

Process Engineers
We are seeking Process Engineers who can develop thin film coating, dispersion and slitting technologies.
For Both Positions
We are in the Data Storage and Information Management business, a spin-off of 3M, and we are looking
for talented and motivated individuals who are seeking a career in the fast-growing information industry.
We are based in the Twin Cities area (Minneapolis/St. Paul) and have a state-of-the-art R & D facility
employing over 800 scientists/engineers. B.S. - Ph.D. and Post-Doc candidates are welcome to apply
and no citizenship requirements need to be met.

Application Procedure: Interested candidates should contact:

Dr. Subodh Kulkarni
Imation
Discovery-ID-20
1 Imation Place
Oakdale, MN 55128
EMail: skkulkarni@imation.com

For more about Imation, visit http://www.imation.com

Academic Opportunities

Assistant Professors (2+)
Department of Chemical Engineering
Indian Institute of Science
Bangalore
INDIA

Qualifications: The prospective candidates must have a Ph.D. in the relevant areas with three years of
post-doctoral research experience (may be relaxed in exceptional cases), and preferably be below 35
years of age.

About IIS: Indian Institute of Science, Bangalore, is a premiere Institute of higher learning and research
in India. It has more than 40 departments/centers/units and nearly 450 faculty members pursuing
research in many areas of science and engineering.

The Department of Chemical Engineering is exclusively devoted to postgraduate education and research.
This permits more time for research in comparison with other educational institutions and we are
interested in candidates desirous of utilizing such an opportunity. Ours is a small department with 11
facult members. At present, we have 23 research students enrolled in the M.Sc. (Engg) and Ph.D. programmes. In addition, we have a one and one-half year M.E. program based on course work, and project work of six months duration.

Application Procedure: Interested candidates may please send their detailed resume, a brief plan of the research work envisaged, xerox copies of transcripts of undergraduate and post-graduate courses, names, postal and EMail addresses and fax numbers of at least three references to:

Prof. K. Kesava Rao, Chairman
Department of Chemical Engineering
Indian Institute of Science
Bangalore 560012
INDIA
Phone: (011) 91-80-3092341
Fax: (011) 91-80-3341683
EMail: kesava@chemeng.iisc.ernet.in

For more about ChemE at IIS/Bangalore, visit http://www.chemeng.iisc.ernet.in

For more about IIS/Bangalore, visit http://www.iisc.ernet.in

Assistant Professor
Department of Chemical Engineering
University of Maine
Orono, Maine

Qualifications: Applicants must have a Ph.D. in Chemical Engineering or a closely-related discipline and a demonstrated commitment to excellence in research and teaching.

Preferred Research/Teaching Foci: The Department currently comprises 11 faculty members with research activities in adsorption biochemical engineering, surface science, polymer science supercritical fluids and pulp and paper engineering. We are especially interested in outstanding candidates who complement our current strengths in surface science and colloidal science in the Departmental programs of Recycled Fiber Studies and Paper Surface Science.

Application Deadline: Review of applications will start July 1, 1999 and will continue until the position is filled.

Application Procedure: Interested candidates should send a current cv, statement of teaching and research interests, and names and addresses of three referees to:
Chair, Faculty Search Committee  
Department of Chemical Engineering  
University of Maine  
Orono, ME 04469-5737  
Phone: (207) 581-2277  
Fax: (207) 581-2323  
EMail: druthven@umche.maine.edu

For more about ChemE at the University of Maine, visit http://www.umche.maine.edu

Chariman  
Department of Chemical Engineering  
University of Ottawa  
Ottawa, Ontario  
CANADA

Qualifications: The candidate must hold a bachelor's degree in Chemical Engineering and a Ph.D. in Chemical Engineering or in a related area, and must be a Registered Professional Engineer at the time of the appointment. Outstanding candidates with a commitment to excellence in research and teaching are being sought. The successful candidate will be expected to develop and maintain an innovative, externally-funded research program. The successful candidate should be bilingual (French/English) and able to teach courses in both languages.

Preferred Research/Teaching Focus: Candidates with a background in biotechnology or biomedical engineering are especially welcome.

Application Deadline: The Faculty plans to fill this position by January 1, 2000 or earlier. Applications should be received by August 20, 1999.

Application Procedure: Applicants should send a complete resume, a one-page research proposal, and a list of three individuals willing to provide references with their addresses, telephone and/or fax numbers and EMail addresses to:

Dr. Tyseer Aboulnasr, P.Eng., Dean  
Faculty of Engineering  
University of Ottawa  
P.O. Box 450, Station A  
Ottawa, Ontario  
K1N 6N5  
CANADA  
Phone: (613) 562-5772  
Fax: (613) 562-5172
Publication Schedule

Your news items, faculty and student distinctions, as well as announcements, job postings and other information for the ChemE community are invited for the upcoming June issue! Faculty, staff, students, alumni/ae --- what's the latest exciting development in your lab? Perhaps you recently returned from a fascinating trip, professional conference, or participated in an honorary lecture series, or received a notable award. Don't be shy -- the Course X community wants to hear the latest about you! Here are the dates for the summer issues of the Course X News:

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<tr>
<th>Issue Date</th>
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Thanks To...

Professor Bob Armstrong, Elaine Aufiero, Arline Benford, Patricia Brennecke, Professor Charlie Cooney, Janet Fischer, Erja Kajosalo, Dr. Subodh Kulkarni, Emmi Snyder, Liz Webb, Steve Wetzel and Professor Jackie Ying for their contributions to this edition of the Course X News!

Submissions for the Course X News should be sent to:
Gregory Sands
Assistant for Publications, Payroll & Fellowships
MIT Administrative Services, 8-328
77 Massachusetts Avenue
Cambridge, MA 02139
EMail: gsands@mit.edu
Phone: (617) 253-0949
Fax: (617) 253-9894