CURRICULUM VITAE

RICHARD M. CROOKS

Robert A. Welch Chair in Materials Chemistry
Chairman, Department of Chemistry and Biochemistry
The University of Texas at Austin

October, 2009

Department of Chemistry and Biochemistry
The University of Texas at Austin
1 University Station, A5300
Austin, TX 78712-0165

Voice: 512-475-8674
Fax: 512-475-8651
Internet: crooks@cm. utexas.edu
www: http://rcrooks.cm.utexas.edu

FORMAL HIGHER EDUCATION

Graduate: The University of Texas at Austin, Ph.D., 1987
Research Advisor: Dr. Allen J. Bard
Specialization: Electrochemistry

Undergraduate: The University of Illinois at Urbana-Champaign, B.S., 1981
Research Advisor: Dr. Larry R. Faulkner
Specialization: Electrochemistry

PROFESSIONAL APPOINTMENTS

The University of Texas at Austin
- Robert A. Welch Chair in Materials Chemistry: 2009 - present
- Chairman, Department of Chemistry and Biochemistry: 2008 - present
- William H. Wade Professor of Chemistry: 2008-2009
- Professor of Chemistry: 2005 – 2008

Texas A&M University
- Professor of Chemistry: 1997 – 2005
- Professor of Chemical Engineering: 2003 – 2005
- Founding Director, Center for Integrated Microchemical Systems: 2000 - 2005
- Associate Professor of Chemistry: 1993 – 1997

University of New Mexico
- Assistant Professor of Chemistry: 1989 – 1993

Massachusetts Institute of Technology
- Postdoctoral Associate: 1987 – 1989

OTHER NOTEWORTHY PROFESSIONAL ACTIVITIES

Sabbatical appointment: ACLARA Biosciences, Mountain View, CA (January – June, 2000)
Co-founder and member of the board of directors: Eclipse Sciences, Inc. (July, 2003)

RESEARCH INTERESTS

Chemical and biological sensors
Integrated microfluidic systems
Nanomaterials
Physical electrochemistry
Catalysis and electrocatalysis

HONORS

Awards

- C. N. Reilley Award of the Society of Electroanalytical Chemistry (2010)
- ACS Division of Analytical Chemistry Award in Electrochemistry (2008)
- Carl Wagner Memorial Award of the Electrochemical Society (2003)
- National Science Foundation Young Investigator Award (1993)
- Office of Naval Research Young Investigator Award (1991)
- Society for Analytical Chemists of Pittsburgh Starter Grant Award (1990)
- Gilbert H. Ayres Award, The University of Texas at Austin (1984)

Offices Held in Professional Societies

- Vice Chairman, Sensor Division, Electrochemical Society (2000-2002)
- Secretary/Treasurer, Sensor Division, Electrochemical Society (1998-2000)
- Executive Committee, Sensor Division, Electrochemical Society (1996-1998)
- Board Member, Society for Electroanalytical Chemistry (1996-2001)
- Awards Committee Chair, Society for Electroanalytical Chemistry (1998 - 2002)

Editorial Activities

- Co-Guest Editor, *Langmuir*, special issue on Electrochemistry, December, 2006 (with Allen J. Bard)
- Editorial Committee Member, *Annual Review of Analytical Chemistry* (2006-2012)
- Senior Editor, *Langmuir* (January 2004 onwards)
- New and Features Advisory Panel, *Analytical Chemistry*, January, 2004 – December, 2006)
- Editorial Board, *Langmuir*, January, 2000- December, 2003
- Editorial Board, *Advanced Functional Materials*, January, 2001- December, 2003.
- Editorial Board, *Sensor Update*, 1998 onwards
- Co-Guest Editor, *Acc. Chem. Res.*, special issue on Chemical Sensors, May, 1998 (with Antonio J. Ricco)
- Co-Guest Editor, *J. Phys. Chem.*, special Festscrift issue honoring Prof. Allen J. Bard, December, 1998 (with Henry S. White)
- Co-Section Editor, *Encyclopedia of Analytical Chemistry* (with Henry S. White)

Significant Administrative Positions

- Department Chairman, UT Department of Chemistry and Biochemistry (2008 – present)
- Director, TAMU Center for Integrated Microchemical Systems (2001-2005)
- Director of Graduate Studies, TAMU Chemistry Department (1996-1999)

Significant Consulting and Advisory Positions

- Molecular Stamping, SAB (2008 – present)
- University of Illinois Science & Technology Center, External Advisory Board (2006-2011)
- ACS Board-Presidential Task Force on the Multidisciplinarity of Chemistry (2004-2005)

Other Service

- TAMEST Conference Program Committee Member (2006-2007)

Publications (h-index = 63)

Peer-Reviewed Research Publications: Submitted and In-Press

- M. A. Albiter; R. M. Crooks; F. Zaera "Adsorption of Carbon Monoxide on Dendrimer-Encapsulated Platinum Nanoparticles: Liquid versus Gas Phase" *J. Phys. Chem. C.*, September, **2009** (submitted).
- B.-Y. Chang; F. Mavré; K.-F. Chow; J. A. Crooks; R. M. Crooks "Snapshot Voltammetry Using a Wireless Microbipolar Electrode in a Constant Electric Field" *Anal. Chem.*, September, **2009** (in preparation).
- R. K. Perdue; D. R. Laws; D. Hlushkou; U. Tallarek; R. M. Crooks "Bipolar Electrode Focusing: the Effect of Current and Electric Field on Concentration Enrichment" *Anal. Chem.*, August, **2009** (submitted).
- M. V. Gomez; J. Guerra; V. S. Myers; R. M. Crooks; A. H. Velders "Nanoparticle size determination by ^{1}H NMR spectroscopy" *J. Am. Chem. Soc.*, September, **2009** (published on the ACS website).
- M. G. Weir; M. R. Knecht; A. I. Frenkel; R. M. Crooks "Structural Analysis of PdAu Dendrimer-Encapsulated Bimetallic Nanoparticles" *Langmuir*, September, **2009** (in press).
- S. V. Myers; A. I. Frenkel; R. M. Crooks "An X-ray Absorption Study of PdCu Bimetallic Alloy Nanoparticles Containing an Average of 64 Atoms" *Chem. Mater.*, September, **2009** (published on the ACS website).
- D. R. Laws; D. Hlushkou; R. Perdue; U. Tallarek; R. M. Crooks "Bipolar electrode focusing: Simultaneous concentration enrichment and separation in a microfluidic channel containing a bipolar electrode" *Anal. Chem.*, September, **2009** (published on the ACS website).

Peer-Reviewed Research Publications: Published

197. F. Mavré; K.-F. Chow; E. Sheridan; B.-Y. Chang; J. A. Crooks; R. M. Crooks "A Theoretical and Experimental Framework for Understanding ECL Emission at Bipolar Electrodes" *Anal. Chem.* **2009**, *81*, 6218-6225.
196. B. A. Zaccheo; R. M. Crooks "Detection of an Epstein-Barr Genome Analog at Physiological Concentrations via the Biometallization of Interdigitated Array Electrodes" *Anal. Chem.* **2009**, *81*, 5757-5761.
195. E. V. Carino; M. R. Knecht; R. M. Crooks "Quantitative Analysis of the Stability of Pd Dendrimer-Encapsulated Nanoparticles" *Langmuir* **2009**, 25, 10279-10284.
194. K.-F. Chow; F. Mavré; J. A. Crooks; B.-Y. Chang; R. M. Crooks "A large-scale, wireless electrochemical bipolar electrode microarray" *J. Am. Chem. Soc.* **2009**, *131*, 8364-8365.
193. D. Hlushkou; R. K. Perdue; R. Dhopeshwarkar; R. M. Crooks; U. Tallarek "Electric field gradient focusing in microchannels with embedded bipolar electrode" *Lab Chip*, **2009**, *9*, 1903-1913.
192. Z. V. Feng; J. L. Lyon; J. S. Croley; R. M. Crooks; D. A. Vanden Bout; K. J. Stevenson "Synthesis and Catalytic Evaluation of Dendrimer-Encapsulated Cu Nanoparticles: An Undergraduate Experiment Exploring Catalytic Nanomaterials" *J. Chem. Ed.* **2009**, *86*, 368-372.

191. M. V. Gomez; J. Guerra; A. H. Velders; R. M. Crooks "NMR Characterization of Fourth-generation PAMAM Dendrimers in the Presence and Absence of Palladium Dendrimer-Encapsulated Nanoparticles" *J. Am. Chem. Soc.* **2009**, *131*, 341-350. Correction published October, 2009.

190. M. R. Knecht; M. G. Weir; V. S. Myers; W. D. Pyrz; H. Ye; V. Petkov; D. J. Buttrey; A. I. Frenkel; R. M. Crooks "Synthesis and Characterization of Pt Dendrimer-Encapsulated Nanoparticles: Effect of the Template on Nanoparticle Formation" *Chem. Mater.* **2008**, *20*, 5218-5228.

189. R. Dhopeshwarkar; D. Hlushkou; M. Nguyen; U. Tallarek; R. M. Crooks "Electrokinetics in Microfluidic Channels Containing a Floating Electrode" *J. Am. Chem. Soc.* **2008**, *130*, 10480-10481.

188. D. Hlushkou; R. Dhopeshwarkar; R. M. Crooks; U. Tallarek "The Influence of Membrane Ion-permselectivity on Electrokinetic Concentration Enrichment in Membrane-based Preconcentration Units" *Lab Chip* **2008**, *8*, 1153-1162.

187. K.-F. Chow; F. Mavré; R. M. Crooks "Wireless Electrochemical DNA Microarray Sensor" *J. Am. Chem. Soc.* **2008**, *130*, 7544-7545.

186. V. Petkov; N. Bedford; M. R. Knecht; M. G. Weir; R. M. Crooks; W. Tang; G. Henkelman; A. Frenkel "Periodicity and Atomic Ordering in Nanosized Particles of Crystals" *J. Phys. Chem. C* **2008**, *112*, 8907-8911.

185. R. Dhopeshwarkar; R. M. Crooks; D. Hlushkou; U. Tallarek "Transient Effects on Microchannel Electrokinetic Filtering with an Ion-Permselective Membrane" *Anal. Chem.* **2008**, *80*, 1039-1048.

184. M. R. Knecht; M. G. Weir; A. I. Frenkel; R. M. Crooks "Structural Rearrangement of Bimetallic Alloy PdAu Nanoparticles within Dendrimer Templates to Yield Core/Shell Configurations" *Chem. Mater.* **2008**, *20*, 1019-1028.

183. J. Kim; R. M. Crooks "Parallel Fabrication of RNA Microarrays by Mechanical Transfer from a DNA Master" *Anal. Chem.* **2007**, *79*, 8994-8999.

182. H. Ye; J. A. Crooks; R. M. Crooks "The Effect of Particle Size on the Kinetics of the Electrocatalytic Oxygen Reduction Reaction Catalyzed by Pt Dendrimer-Encapsulated Nanoparticles" *Langmuir* **2007**, *23*, 11901-11906.

181. J. Kim; R. M. Crooks "Replication of DNA Microarrays Prepared by In-Situ Oligonucleotide Polymerization and Mechanical Transfer" *Anal. Chem.* **2007**, *79*, 7267-7274.

180. W. M. Lackowski; Y. Vasilyeva; R. M. Crooks; S. C. Kerwin; D. A. Hulse "Microchemical and Surface Evaluation of Canine Tibial Plateau Leveling Osteotomy Plates" *Am. J. Vet. Res.* **2007**, *68*, 908-916.

179. M. R. Knecht; R. M. Crooks "Magnetic Properties of Dendrimer-Encapsulated Iron Nanoparticles Containing 55 and 147 Atoms" *New J. Chem.* **2007**, *31*, 1349-1353. Special issue on dendrimers.

178. H. Ye; R. M. Crooks "Effect of Elemental Composition of PtPd Bimetallic Nanoparticles Containing an Average of 180 Atoms on the Kinetics of the Electrochemical Oxygen Reduction Reaction" *J. Am. Chem. Soc.* **2007**, *129*, 3627-3633.

177. J. Kim; J. Heo; R. M. Crooks "Hybridization of DNA to Bead-Immobilized Probes Confined within a Microfluidic Channel" *Langmuir* **2006**, *22*, 10130-10134.

176. M. R. Knecht; J. C. Garcia-Martinez; R. M. Crooks "Synthesis, Characterization, and Magnetic Properties of Dendrimer-Encapsulated Nickel Nanoparticles Containing <150 Atoms" *Chem. Mater.* **2006**, *18*, 5039-5044.

175. J. Kim; R. M. Crooks "Transfer of Surface Polymerase Reaction Products to a Secondary Platform with Conservation of Spatial Registration" *J. Am. Chem. Soc.* **2006**, 128, 12076-12077.

174. O. M. Wilson; M. R. Knecht; J. C. Garcia-Martinez; R. M. Crooks "The Effect of Pd Nanoparticle Size on the Catalytic Hydrogenation of Allyl Alcohol" *J. Am. Chem. Soc.* **2006**, *128*, 4510-4511.

173. H. Lin; J. Kim; L. Sun; R. M. Crooks "Replication of DNA Microarrays from Zip Code Masters" *J. Am. Chem. Soc.* **2006**, *128*, 3268-3272.

172. L. Sun; R. M. Crooks "Photonic Reporting of Electrochemical Reactions Using Light Emitting Diodes" *J. Electrochem. Soc.* **2005**, *152*, E371-E377.

171. M. R. Knecht; J. C. Garcia-Martinez; R. M. Crooks "Hydrophobic Dendrimers as Templates for Au Nanoparticles" *Langmuir* **2005**, *21*, 11981-11986.

170. Y.-G. Kim; R. M. Crooks "Synthesis and Characterization of Covalently Linked Multilayer Films Prepared in the Absence of Solvent" *Langmuir* **2005**, *21*, 11262-11267.

169. J. Heo; R. M. Crooks "Microfluidic Biosensor Based on an Array of Hydrogel-Entrapped Enzymes" *Anal. Chem.* **2005**, *77*, 6843-6851.

168. R. Dhopeshwarkar; L. Sun; R. M. Crooks "Electrokinetic Concentration Using Hydrogel Microplugs within a Microfluidic Device" *Lab Chip* **2005**, *5*, 1148 - 1154.

167. S.-K. Oh; Y. Niu; R. M. Crooks "Size-Selective Catalytic Activity of Pd Nanoparticles Encapsulated within End-Group Functionalized Dendrimers" *Langmuir* **2005**, *21*, 10209-10213.

166. H. Lin; L. Sun; R. M. Crooks "Replication of a DNA Microarray" *J. Am. Chem. Soc.* **2005**, *27*, 11210-11211.

165. Y.-G. Kim; J. C. Garcia-Martinez; R. M. Crooks "Electrochemical Properties of Monolayer-Protected Au and Pd Nanoparticles Extracted from within Dendrimer Templates" *Langmuir* **2005**, *21*, 5485-5491.

164. J. C. Garcia-Martinez; R. Lezutekong; R. M. Crooks "Dendrimer-Encapsulated Pd Nanoparticles as Aqueous, Room-Temperature Catalysts for the Stille Reaction" *J. Am. Chem. Soc.* **2005**, *127*, 5097-5103.

163. H. Ye; R. M. Crooks "Electrocatalytic O_2 Reduction at Glassy Carbon Electrodes Modified with Dendrimer-Encapsulated Pt Nanoparticles" *J. Am. Chem. Soc.* **2005**, *127*, 4930-4934.

162. R. W. J. Scott; C. Sivadinarayana; O. M. Wilson; Z. Yan; D. W. Goodman; R. M. Crooks "Titania-Supported PdAu Bimetallic Catalysts Prepared from Dendrimer-Encapsulated Nanoparticle Precursors" *J. Am. Chem. Soc.* **2005**, *127*, 1380-1381.

161. O. M. Wilson; R. W. J. Scott; J. C. Garcia-Martinez; R. M. Crooks "Synthesis, Characterization, and Structure-Selective Extraction of 1-3 nm-Diameter AuAg Dendrimer-Encapsulated Bimetallic Nanoparticles " *J. Am. Chem. Soc.* **2005**, *127*, 1015-1024.

160. R. W. J. Scott; O. M. Wilson; R. M. Crooks "Synthesis, Characterization, and Applications of Dendrimer-Encapsulated Nanoparticles" *J. Phys. Chem. B* **2005**, *109*, 692-704 (Feature Article).

159. R. W. J. Scott; O. M. Wilson; R. M. Crooks "Titania-Supported Au and Pd Composites Synthesized from Dendrimer-Encapsulated Metal Nanoparticle Precursors" *Chem. Mater.* **2004**, *16*, 5682-5688.

158. T. Ito; L. Sun; R. R. Henriquez; R. M. Crooks "A Carbon Nanotube-Based Coulter Nanoparticle Counter" *Acc. Chem. Res.* **2004**, *37*, 937-945.

157. J. C. Garcia-Martinez; R. M. Crooks "Extraction of Au Nanoparticles having Narrow Size Distributions from within Dendrimer Templates" *J. Am. Chem. Soc.* **2004**, *126*, 16170-16178.

156. R. W. J. Scott; O. M. Wilson; S.-K. Oh; E. A. Kenik; R. M. Crooks "Bimetallic Palladium-Gold Dendrimer-Encapsulated Catalysts" *J. Am. Chem. Soc.* **2004**, *126*, 15583-15591.

155. O. M. Wilson; R. W. J. Scott; J. C. Garcia-Martinez; R. M. Crooks "Separation of Dendrimer-Encapsulated Au and Ag Nanoparticles by Selective Extraction" *Chem. Mater.* **2004**, *16*, 4202-4204.

154. T. Ito; L. Sun; M. A. Bevan; R. M. Crooks "Comparison of Nanoparticle Size and Electrophoretic Mobility Measurements using a Carbon Nanotube-Based Coulter Counter, Dynamic Light Scattering, Transmission Electron Microscopy, and Phase Analysis Light Scattering" *Langmuir* **2004**, *20*, 6940-6945.

153. G. P. Perez; R. M. Crooks "Pore-Bridging Poly(dimethylsiloxane) Membranes as Selective Interfaces for Vapor-Phase Chemical Sensing" *Anal. Chem.* **2004**, 76, 4137-4142.

152. D. Liu; R. K. Perdue; L. Sun; R. M. Crooks "Immobilization of DNA onto Poly(dimethylsiloxane) Surfaces and Application to a Microelectrochemical Enzyme-Amplified DNA Hybridization Assay" *Langmuir* **2004**, *20*, 5905-5910.

151. R. R. Henriquez; T. Ito; L. Sun; R. M. Crooks "The Resurgence of Coulter Counting for Analyzing Nanoscale Objects" *The Analyst* **2004**, *129*, 478-482.

150. H. Ye; R. W. J. Scott; R. M. Crooks "Synthesis, Characterization, and Surface Immobilization of Platinum and Palladium Nanoparticles Encapsulated within Amine-terminated Poly(amidoamine) Dendrimers" *Langmuir* **2004**, *20*, 2915-2920.

149. Y.-G. Kim; S.-K. Oh; R. M. Crooks "Preparation and Characterization of 1-2 nm Dendrimer-Encapsulated Gold Nanoparticles having Very Narrow Size-Distributions" *Chem. Mater.* **2004**, *16*, 167-172.

148. S.-K. Oh; Y.-G. Kim; H. Ye; R. M. Crooks "Synthesis, Characterization, and Surface Immobilization of Metal Nanoparticles Encapsulated within a Polycationic Dendrimer" *Langmuir* **2003**, *19*, 10420-10425.

147. Y. Niu; R. M. Crooks "Dendrimer-Encapsulated Metal Nanoparticles and their applications to Catalysis" *Comptes Rendus Chimie* **2003**, *6*, 1049-1059 (invited).

146. J. Dai; T. Ito; L. Sun; R. M. Crooks "Electrokinetic Trapping and Concentration Enrichment of DNA in a Microfluidic Channel" *J. Am. Chem. Soc.* **2003**, *125*, 13026-13027.

145. R. W. J. Scott; H. Ye; R. R. Henriquez; R. M. Crooks "Synthesis, Characterization, and Stability of Dendrimer-Encapsulated Palladium Nanoparticles" *Chem. Mater.* **2003**. *15*, 3873-3878.

144. J. C. Garcia-Martinez; R. W. J. Scott; R. M. Crooks "Extraction of Monodisperse Palladium Nanoparticles from Dendrimer Templates" *J. Am. Chem. Soc.* **2003**, *125*, 11190-11191.

143. Y. Niu; R. M. Crooks "Preparation of Dendrimer-Encapsulated Metal Nanoparticles using Organic Solvents" *Chem. Mater.* **2003**, *15*, 3463-3467.

142. W. Zhan; R. M. Crooks "Microfluidic Logic Circuits" *J. Am. Chem. Soc.* **2003**, *125*, 9934-9935.

141. Y. Niu; L. Sun; R. M. Crooks "Determination of the Intrinsic Proton Binding Constants for Poly(amidoamine) Dendrimers via Potentiometric pH Titration" *Macromolecules* **2003**, *36*, 5725-5731.

140. G. P. Perez; W. G. Yelton; R. W. Cernosek; R. J. Simonson; R. M. Crooks "Gas Adsorption Gates Based on Ultrathin Composite Polymer Films "*Anal. Chem.* **2003**, *75*, 3625-3630.

139. G. H. Seong; J. Heo; R. M. Crooks "Measurement of Enzyme Kinetics using a Continuous-Flow Microfluidic System" *Anal. Chem.* **2003**, *75*, 3161-3167.

138. T. Ito; L. Sun; R. M. Crooks "Observation of DNA Transport through a Single Carbon Nanotube Channel Using Fluorescence Microscopy" *Chem. Comm.* **2003**, 1482-1483.

137. T. Ito; L. Sun; R. M. Crooks "Simultaneous Determination of the Size and Surface Charge of Individual Nanoparticles Using a Carbon Nanotube-Based Coulter Counter" *Anal. Chem.* **2003**, *75*, 2399-2406.

136. R. W. J. Scott; A. K. Datye; R. M. Crooks "Bimetallic Palladium-Platinum Dendrimer-Encapsulated Catalysts" *J. Am. Chem. Soc.* **2003**, *125*, 3708-3709.

135. S. A. Bell; M. E. McClean; S.-K. Oh; S. E. Tichy; W. Zhang; R. M. Corn; R. M. Crooks; E. E. Simanek "Covalently Linked Single-Stranded DNA Oligonucleotide-Dendron Assemblies: Synthesis and Characterization" *Bioconj. Chem.* **2003**, 14, 488-493.

134. W. Zhan; J. Alvarez; R. M. Crooks "A Multichannel Microfluidic Sensor that Detects Anodic Redox Reactions Indirectly Using Anodic Electrogenerated Chemiluminescence" *Anal. Chem.* **2003**, *75*, 1233-1238.

133. W. Zhan; J. Alvarez; R. M. Crooks "A Two-Channel Microfluidic Sensor that Uses Anodic Electrogenerated Chemiluminescence as a Photonic Reporter of Cathodic Redox Reactions" *Anal. Chem.* **2003**, *75*, 313-318.

132. J. Heo; K. J. Thomas; G. H. Seong; R. M. Crooks "A Microfluidic Bioreactor Based on Hydrogel-Entrapped *E. coli*: Cell Viability, Lysis, and Intracellular Enzyme Reactions" *Anal. Chem.* **2003**, *75*, 22-26.

131. T. Ito; L. Sun; R. M. Crooks "Electrochemical Etching of Individual Multiwall Carbon Nanotubes" *Electrochem. Solid State Lett.* **2003**, 6, C4-C7.

130. B. Rowan; M. A. Wheeler; R. M. Crooks "Patterning Bacteria within Hyperbranched Polymer Film Templates" *Langmuir* **2002**, *18*, 9914-9917.

129. G. H. Seong; R. M. Crooks "Efficient Mixing and Reactions within Microfluidic Channels Using Microbead-Supported Catalysts" *J. Am. Chem. Soc.* **2002**, *124*, 13360-13361.

128. W. Zhan; J. Alvarez; R. M. Crooks "Electrochemical Sensing in Microfluidic Systems Using Electrogenerated Chemiluminescence as a Photonic Reporter of Redox Reactions" *J. Am. Chem. Soc.* **2002**, *124*, 13265-13270.

127. L. Sun; R. M. Crooks "Dendrimer-Mediated Immobilization of Catalytic Nanoparticles on Flat, Solid Supports" *Langmuir* **2002**, *18*, 8231-8236.

126. W. Zhan; G. H. Seong; R. M. Crooks "Hydrogel-Based Microreactors as a Functional Component of Microfluidic Systems" *Anal. Chem.* **2002**, *74*, 4647-4652.

125. J. Alvarez; L. Sun; R. M. Crooks "Electroactive Composite Dendrimer Films Containing Thiophene-Terminated Poly(amidoamine) Dendrimers Crosslinked by Poly(3-Methylthiophene)" *Chem. Mater.* **2002**, *14*, 3995-4001.

124. S.-K. Oh; L. A. Baker; R. M. Crooks "Electrochemical Rectification Using Mixed Monolayers of Redox-Active Ferrocenyl Dendrimers and *n*-Alkanethiols" *Langmuir* **2002**, *18*, 6981-6987.

123. G. H. Seong; W. Zhan; R. M. Crooks "Fabrication of Microchambers within Microfluidic Systems using Photopolymerized Hydrogels: Application to DNA Hybridization" *Anal. Chem.* **2002**, *74*, 3372-3377.

122. L. Sun; R. M. Crooks "Interactions between Dendrimers and Charged Probe Molecules. 1. Theoretical Methods for Simulating Proton and Metal Ion Binding to Symmetrical Polydentate Ligands" *J. Phys. Chem. B.* **2002**, *106*, 5864-5872.

121. L. A. Baker; L. Sun; R. M. Crooks "Synthesis and Catalytic Properties of Imidazole-Functionalized Poly(propylene imine) Dendrimers" *Bull. Korean Chem. Soc.* **2002**, *23*, 647-654 (invited feature article).

120. R. M. Crooks "Patterning of Hyperbranched Polymer Films" *Chem. Phys. Chem.* **2001**, *2*, 644-654.

119. L. K. Yeung; C. J. Lee, Jr.; K. P. Johnston; R. M. Crooks "Heck Catalysis in Supercritical CO_2 using Palladium Nanoparticles Encapsulated in Dendrimer Nanoreactors" *Chem. Commun.* **2001**, 2290-2291.

118. W. S. Baker; B. I. Lemon, III; R. M. Crooks "Electrochemical and Spectroscopic Characterization of Viologen-Functionalized Poly(amidoamine) Dendrimers" *J. Phys. Chem.* **2001**, *105*, 8885-8894.

117. S. V. Verhoturov; E. A. Schweikert; E. S. Parilis; V. Chechik; R. C. Sabapathy; R. M. Crooks "Auger-Stimulated Ion Desorption of Negative Ions" *Phys. Rev. Lett.* **2001**, 87, 037601-1 – 037601-4.

116. Y. Niu; L. K. Yeung; R. M. Crooks "Size-Selective Hydrogenation of Olefins by Dendrimer-Encapsulated Palladium Nanoparticles" *J. Am. Chem. Soc.* **2001**, *123*, 6840-6846.

115. L. Zhou; D. H. Russell; M. Zhao; R. M. Crooks "Characterization of Poly(amidoamine) Dendrimers and Their Complexes with Cu^{2+} by Matrix Assisted Laser Desorption Ionization Mass Spectrometry" *Macromolecules* **2001**, *34*, 3567-3573.

114. M. L. Amirpour; P. Ghosh; W. M. Lackowski; R. M. Crooks; M. V. Pishko "Mammalian Cell Cultures on Micropatterned Surfaces of Weak-Acid, Polyelectrolyte Hyperbranched Thin Films on Gold" *Anal. Chem.* **2001**, *73*, 1560-1566.

113. R. M. Crooks; M. Zhao; L. Sun; V. Chechik; L. K. Yeung "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Applications to Catalysis" *Acc. Chem. Res.* **2001**, *34*, 181-190.

112. P. Ghosh; W. M. Lackowski; R. M. Crooks "Two New Approaches for Patterning Polymer Films using Templates Prepared by Micro-Contact Printing" *Macromolecules* **2001**, *34*, 1230-1236.

111. L. Sun; R. M. Crooks; V. Chechik "Preparation of Polycyclodextrin Hollow Nanospheres by Templating Gold Nanoparticles" *Chem. Commun.* **2001**, 359-360.

110. L. K. Yeung; R. M. Crooks "Heck Heterocoupling within a Dendritic Nanoreactor" *Nano Lett.* **2001**, *1*, 14-17.

109. B. I. Lemon; R. M. Crooks "Preparation and Characterization of Dendrimer-Encapsulated CdS Semiconductor Quantum Dots" *J. Am. Chem. Soc.* **2000**, *122*, 12886-12887.

108. R. D. English; M. J. Van Stipdonk; R. C. Sabapathy; R. M. Crooks; E. A. Schweikert "Characterization of Photooxidized Self-Assembled Monolayers and Bilayers by Spontaneous Desorption Mass Spectrometry" *Anal. Chem.* **2000**, *72*, 5973-5980.

107. L. Sun; R. M. Crooks "Single Carbon-Nanotube Membranes: A Well-Defined Model for Studying Mass Transport through Nanoporous Materials" *J. Am. Chem. Soc.* **2000**, *122*, 12340-12345.

106. L. A. Baker; R. M. Crooks "Photophysical Properties of Pyrene-Functionalized Poly(propylene imine) Dendrimers" *Macromolecules* **2000**, 33, 9034-9039.

105. V. Chechik; R. M. Crooks; C. J. M. Stirling "Reactions and Reactivity in Self-Assembled Monolayers" *Adv. Mater.* **2000**, 12, 1161-1171.

104. R. C. Sabapathy; R. M. Crooks "Synthesis of a Three-Layer Organic Thin Film Prepared by Sequential Reactions in the Absence of Solvents" *Langmuir* **2000**, 16, 7783-7788.

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10. "Electrochemical Microfluidic Circuits" *Anal. Chem.* **2003**, *75*, 409A (1 October, 2006).
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8. Dendrimer-Encapsulated Catalysts are Recyclable" *Chem. Eng. News* **2000**, *78 (8)*, 8.
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Patents and Patent Applications

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7. D. Albagli; L. Sun; R. M. Crooks "Photonic Signal Reporting of Electrochemical Events" CIP related to Patent 6 filed 22 July, 2003.
6. W. Zhan; J. Alvarez; R. M. Crooks "Electrochemical Sensing in Microfluidic Systems using Electrogenerated Chemiluminescence as a Photonic Reporter of Electroactive Species" Filed 21 March, 2003. U. S. Patent Application Serial Number: 10/393,942.
5. L. Sun; R. M. Crooks "Method and Apparatus for Nanoparticle Transport and Detection", Filed 22 July, 2002. U. S. Patent No. US 7,077,939 B1 issued 18 July, 2006.
4. M. Zhao; A. J. Ricco; H. S. Lackritz; T. O. Bjornson; R. M. Crooks; D. Slomski; U. Nguyen; Z. Qun "Systemt Integration Using Electrically Conductive Ink to Print Electrodes on a Microfluidic Device; Reducing Bubble Formation by Coating Electrodes with Conductive Ink; Materials in Addition to Norbornene, w/ Associated Electrodes, Heaters, other Elements" Filed September 19, 2001; Published 28 March, 2002. PCT Application WO 02/24322.
3. M. Zhao; A. J. Ricco; H. S. Lackritz; T. O. Bjornson; R. M. Crooks; D. Slomski; U. Nguyen; Z. Qun "Norbornene (Zeonore) Materials; Associated Electrodes, Heaters, Other Elements". Filed September 19, 2000; Published 5 Sept. 2002. US Application 2002-0122747-A1.
2. R. M. Crooks; A. J. Ricco; M. Wells "Dendrimer Monolayer Films" U.S. Patent 6,312,809 B1 issued 6 November, 2001.
1. R. M. Crooks; T. Kim; K. C. Chan; J. K. Schoer "Polymeric Self-Assembled Mono- and Multilayers and Their Use in Photolithography" U.S. Patent No. US 5,885,753 issued 23 March, 1999.

INVITED PRESENTATIONS

General Presentations

1. Fall Commencement Address (The University of Texas at Austin, College of Natural Sciences, December, 2008)

Lectureships

5. Society for Analytical Chemists of Pittsburgh (Pittsburgh, PA, September, 2005). "Synthesis, Characterization, and Electrocatalysis using Dendrimer-Encapsulated Catalysts"

4. University of Utah (Salt Lake City, UT, November, 2002). Departmental colloquium. "Dendrimer-Encapsulated Nanoparticles: Synthesis, Characterization, and Applications to Catalysis"
3. University of Wyoming (Laramie, WY, July, 2000). Summer Seminar: five lectures collectively titled "Adventures in Nanotechnology".
2. Electrochemical Society, Chicago Section (Lisle, IL, December, 1997). "Interfacial Materials for Array-Based Chemical Sensors"
1. Senior Technical Meeting: ACS Puerto Rico Section (Lajas, Puerto Rico, November, 1995). "Chemical Sensors and Interfacial Design"

Invited International Presentations

31. Simpósio Brasileiro de Eletroquímica e Eletroanalítca (SIBEE XVII) (Fortaleza, Brazil, April, 2009). "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles. (Plenary)
30. The Hong Kong Polytechnic University (Hong Kong, December, 2007). "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
29. Fifth International Dendrimer Symposium (Toulouse, France, August, 2007). "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
28. MESA+ Institute for Nanotechnology & University of Twente (Twente, The Netherlands, June, 2007). "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
27. University of Warwick (Warwick, UK, June, 2007). "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
26. Second reunión de la División de Nanociencia y Nanotecnología (DINANO) de la Sociedad Mexicana de Fisica (SMF) (Vera Cruz, Mexico, May, 2007). "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticle"
25. Fifth International Society of Electrochemistry Spring Meeting (Dublin, Ireland, May, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticle" (plenary talk)
24. Workshop on Surface Reactivity and Nanocatalysis (Ebeltoft, Denmark, June, 2006) "Solution routes to nanoparticle synthesis"
23. Simon Fraser University (Victoria, BC, Canada, March, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
22. University of British Columbia (Vancouver, BC, Canada, March, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
21. University of Victoria (Victoria, BC, Canada, March, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
20. Université de Montréal (Montreal, December, 2005). "Synthesis, Characterization, and

Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"

19. McGill University (Montreal, December, 2005). "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
18. Université du Québec à Montréal (Montreal, December, 2005). "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
17. The 8th SPSJ International Polymer Conference (Fukuoka, Japan, July, 2005). "Dendrimer-Encapsulated Nanoparticles: Application to the Oxygen Reduction Reaction"
16. NATO Advanced Research Workshop on Nanocomposites for a Secure Society (Ouranoupolis, Greece, May, 2005). "Analytical Applications of Single-Pore Membranes Based on Carbon Nanotubes"
15. Leopoldina Meeting (Heidelberg, Germany, March, 2005). "Dendrimer-Encapsulated Bimetallic Nanoparticles: Synthesis, Characterization, and Applications to Catalysis"
14. Kyoto University (Kyoto, Japan, February, 2004). "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
13. The Second International Workshop on Microchemical Plants (Hyogo, Japan, February, 2004). "Electrochemical Detection and Photonic Reporting in a Microchemical System"
12. University of Alberta (Edmonton, Alberta, Canada, June, 2001). "Dendrimer-Encapsulated Nanoparticles: Applications to Catalysis"
11. First International Symposium on Integrated Molecular Systems (Pohang, Korea, February, 2001) "Dendrimer Encapsulated Nanoparticles: Synthesis, Properties, Catalysis, and Luminescence"
10. National Institute for Advanced Interdisciplinary Research (Tsukuba, Japan, February, 2001) "Dendrimer Encapsulated Nanoparticles: Synthesis, Properties, Catalysis, and Luminescence"
9. Second International Conference on Supramolecular Chemistry and Technology (Leuven, Belgium, September, 2000) "Dendrimer-Encapsulated Nanoparticles: Catalysis and Luminescence"
8. German-American Frontiers of Chemistry Symposium (Kloster Seeon, Germany).
7. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999). "Electrochemistry using Single Carbon Nanotubes and Applications to Scanning Electrochemical Microscopy"
6. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999). "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"
5. International Society of Electrochemistry (Pavia, Italy, September, 1999). "Electrocatalysts Based on Dendrimer-Encapsulated, Nanoscopic Transition Metal Particles"
4. NATO Advanced Research Workshop on Supramolecular Science (La Spezia, Italy, September, 1998). "Dendrimer-Encapsulated Metal Nanoclusters for Heterogeneous and Homogeneous Catalysis"

3. First NIMC International Symposium on Photoreaction Control and Photofunctional Materials (Tsukuba, Japan, March, 1998). "Synthesis, Characterization, and Applications of Photopolymerizable Self-Assembled Monolayers"
2. University of Sheffield (Sheffield, UK, September, 1997). "Interfacial Design for Chemical Sensor Arrays"
1. Faraday Discussion No. 107 (Leicester, UK, September, 1997) "Interactions between Self-Assembled Monolayers and an Organophosphonate"

U. S. Colleges and Universities

80. University of Washington (Seattle, WA, April, 2009) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
79. Virginia Commonwealth University (Richmond, VA, April, 2009) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
78. University of Kansas (Lawrence, KS, October, 2008) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
77. Kansas State University (Manhattan, KS, October, 2008) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
76. Brown University (Providence, RI April, 2008) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
75. Penn State University (State College, PA, April, 2008) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
74. Gustavus Adolphus College (St. Peter, MN, October, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
73. University of Minnesota (Minneapolis, MN, October, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
72. Princeton University (Princeton, NJ, April, 2007) "Dendrimer-Encapsulated Nanoparticles: Synthesis, Characterization, and Electrocatalysis"
71. Trinity University (San Antonio, TX, November, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
70. Southern Illinois University (Carbondale, IL, April, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
69. University of Wyoming (Laramie, WY, April, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
68. Colorado State University (Ft. Collins, CO, April, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
67. University of Southern Mississippi (Hattiesburg, MS, March, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
66. Georgetown University (Washington, DC, March, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"

65. University of California, Davis (Davis, CA, February, 2006) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
64. University of California, Riverside (Riverside, CA, January, 2006) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
63. University of California, Irvine (Irvine, CA, January, 2006) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
62. University of Louisville (Louisville, KY, April, 2005) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
61. University of Florida (Gainesville, FL, December, 2004) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
60. University of Maryland (College Park, MD, March, 2004) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
59. Vanderbilt University (Nashville, TN, March, 2004) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
58 University of Texas-Austin (Austin, TX, January, 2004) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
57. University of Delaware (Newark, DE, December, 2003) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
56. Purdue University (West Lafayette, IN, December, 2003) "Electrochemical Detection and Photonic Reporting in Microfluidic-Based Chemical Sensors"
55. University of North Carolina (Chapel Hill, NC, April, 2003) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
54. Texas A&M University (Dept. of Chemical Engineering, College Station, TX, April, 2003)" Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
53. Michigan State University (East Lansing, MI, January, 2003) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
52. Northwestern University (Evanston, IL, October, 2002) "Dendrimer-Encapsulated Catalysts"
51. University of Northern Iowa (Cedar Falls, IA, October, 2002) "Dendrimer-Encapsulated Catalysts"
50. University of Miami (Coral Gables, FL, February, 2002) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
49. Oklahoma State University (Stillwater, OK, November, 2001) "Dendrimer-Encapsulated Catalysts"
48. Auburn University (Auburn, AL, October, 2001) "Dendrimer-Encapsulated Catalysts"
47. University of Washington (Seattle, WA, May, 2001) "Dendrimer-Encapsulated Catalysts"
46. Duquesne University (Pittsburgh, PA, October, 2000) "Dendrimer-Encapsulated Nanoparticles: Catalysis and Luminescence"

45. Washington University (St. Louis, MO, September, 2000) "Dendrimer-Encapsulated Nanoparticles: Catalysis and Luminescence"
44. University of California, Irvine (Irvine, CA, April, 2000) "Dendrimer-Encapsulated Metal and Semiconductor Nanoparticles"
43. University of South Carolina (Columbia, SC, November, 1999) "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"
42. Furman University (Greenville, SC, November, 1999) "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"
41. Indiana University (Bloomington, IN, April, 1999) "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"
40. University of Kentucky (Lexington, KY, February, 1999) "Chemical Sensors and Interfacial Design"
39. University of Alabama (Tuscaloosa, AL, January, 1999) "Hyperbranched Polymers: New Materials for Chemical Sensing and Biological Chemistry"
38. Truman State University (Kirksville, MO, October, 1998) "Interfacial Design for Chemical Sensor Arrays"
37. Grinnell College (Grinnell, IA, October, 1998) "Interfacial Design for Chemical Sensor Arrays"
36. Northwestern University (Evanston, IL, October, 1998) "Electrocatalysis using Dendrimer-Encapsulated Metal Nanoclusters"
35. Colorado State University (Ft. Collins, CO, August, 1998). "Electrocatalysis using Dendrimer-Encapsulated Metal Nanoclusters"
34. Washington State University (Pullman, WA, April, 1998). "Interfacial Design for Chemical Sensor Arrays"
33. University of Florida (Gainesville, FL, March, 1998). "Interfacial Design for Chemical Sensor Arrays"
32. University of Iowa (Iowa City, IA, February, 1998). "Interfacial Design for Chemical Sensor Arrays"
31. University of Wisconsin (Madison, WI, February, 1998). "Interfacial Design for Chemical Sensor Arrays"
30. University of Houston (Houston, TX, November, 1997). "Interfacial Design for Chemical Sensor Arrays"
29. University of Delaware (Newark, DE, March, 1997). "Chemical Sensors and Interfacial Design"
28. University of Michigan (Ann Arbor, MI, January, 1997). "Chemical Sensors and Interfacial Design"
27. Louisiana State University, CAMD (Baton Rouge, LA, August, 1996). "Chemical Sensors and Interfacial Design"
26. University of Illinois, Department of Chemistry (Urbana, IL, April, 1996). "Chemical Sensors and Interfacial Design" (Invitation by students).

25. University of Minnesota, Department of Chemical Engineering and Materials Science (Minneapolis, MN, February, 1996). "The Molecular Basis of Adhesion"
24. Auburn University (Auburn, AL, February, 1995). "Fabrication of Electrodes and Electrode Arrays using Self-Assembled Monolayer Resists"
23. Georgia Institute of Technology (Atlanta, GA, February, 1995). "Fabrication of Electrodes and Electrode Arrays using Self-Assembled Monolayer Resists"
22. University of Georgia (Athens, GA, February, 1995). "Fabrication of Electrodes and Electrode Arrays using Self-Assembled Monolayer Resists"
21. University of Texas (Dallas, TX, April, 1994). "Interactions Between Monolayers and Molecules"
20. University of North Texas (Denton, TX, April, 1994). "STM of Thin Organic Films"
19. University of Utah (Salt Lake City, UT, February, 1994). "Interactions Between Monolayers and Molecules"
18. University of Mississippi (University, MS, January, 1994). "Interactions Between Monolayers and Molecules"
17. University of Wisconsin (Madison, WI, December, 1993). "Interactions Between Monolayers and Molecules"
16. University of Illinois (Urbana, IL, December, 1992). "Nanometer-resolved interactions between scanning probes, organic monolayers, and gold substrates"
15. Texas A&M University (College Station, TX, October, 1992). "Nanometer-resolved interactions between scanning probes, organic monolayers, and gold substrates"
14. University of Wyoming (Laramie, WY, September, 1992). "Interactions Between Probe Molecules and Organized Monolayers: A New Paradigm for Molecular Recognition"
13. Colorado State University (Ft. Collins, CO, September, 1992). "Interactions Between Probe Molecules and Organized Monolayers: A New Paradigm for Molecular Recognition"
12. University of Texas at Austin (Austin, TX, April, 1992). "Organized Monolayers on Surfaces: New Functions and Structural Insights"
11. San Diego State University (San Diego, CA, November, 1991). "Organized Monolayers on Surfaces: New Functions and Structural Insights"
10. Northern Arizona University (Flagstaff, AZ, November, 1991) "Organized Monolayers on Surfaces: New Functions and Structural Insights"
9. University of Texas at El Paso (El Paso, TX, November, 1991). "Materials Chemistry Aspects of Electrochemistry"
8. University of New Mexico, Center for High Technology Materials (Albuquerque, NM, April, 1990). "Microelectrochemical Devices: Transistors, Diodes, and Sensors"
7. New Mexico State University (Las Cruces, NM, February, 1990). "Solid State Electrochemical Devices Employing a Solid Polymer Electrolyte"
6. University of Pittsburgh (Pittsburgh, PA, April, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"

5. Michigan State University (East Lansing, MI, March, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"
4. Indiana University (Bloomington, IN, February, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"
3. Colorado State University (Ft. Collins, CO, January, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"
2. Pennsylvania State University (University Park, PA, January, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"
1. University of Wisconsin (Madison, WI, January, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"

Government Laboratories & Agencies, and Businesses

17. 3M Innovation Center (Austin, TX, September, 2006) "Electrochemical Detection and Photonic Reporting in Microfluidic-Based Chemical Sensors"
16. DuPont (Wilmington, DE, April, 2005) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
15. GlaxoSmithKline (RTP, NC, April, 2003) "Microfluidic Biosensors: Reactions, Mixing, and Detection"
14. WTEC Biosensing Study (NIH, Bethesda, MD, December, 2002) "Bio/Chemical Sensing using Thin Film Recognition Elements"
13. Michigan Molecular Institute (Midland, MI, May, 2002). "Dendrimer-Encapsulated Metal Nanoparticles"
12. Shell Chemical Co. (Houston, TX, February, 2001). "Dendrimer Encapsulated Catalysts"
11. ACLARA Biosciences (Mountain View, CA, July, 1999). "Hyperbranched Polymers: New Materials for Chemical Sensing and Biological Chemistry"
10. Sandia National Laboratories (Albuquerque, NM, March, 1999). "Hyperbranched Polymers: New Materials for Chemical Sensing and Biological Chemistry"
9. ATP Workshop on Chemical Sensors and Biosensors (NIST, Gaithersburg, MD, July, 1998). "An Integrated, Consortium-based Approach for Chemical Sensor R&D"
8. Workshop on Properties and Applications of Dendritic Polymers (NIST, Gaithersburg, MD, July, 1998). "Chemical Sensors Based on Surface-Confined Dendrimers and Surface Acoustic Wave (SAW) Devices"
7. NIST (Gaithersburg, MD, July, 1998). "Electrocatalysis using Dendrimer-Encapsulated Metal Nanoclusters"
6. Amoco Chemical (Naperville, IL, December, 1997). "Hyperbranched Polymers on Surfaces: Synthesis, Characterization, and Applications to Corrosion Passivation and Permselective Membranes"
5. Michigan Molecular Institute (Midland, MI, January, 1997). "Chemical Sensors and Interfacial Design"
4. NIST (Gaithersburg, MD, July, 1996). "Chemical Sensors and Interfacial Design"

3. Naval Research Laboratory (Washington, DC, August, 1991) "Surface-Confined Monolayers that Perform Specific Tasks"
2. Dow Chemical Company (Midland, MI, June, 1991). "Electrochemical Routes to Ceramics and Ceramic Precursors"
1. Sandia National Laboratories (Albuquerque, NM, January, 1991). "Self-Assembling Monolayers"

U. S. Scientific Conferences

115. Sixth Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, Sept., 2009). "Bipolar electrodes: a simple means for concentration, separation, and detection of analytes in microfluidic channels"
114. Extreme Biosensing (Makena, Maui, Hawaii, December, 2008). "Extreme Bipolar Electrodes"
113. ACS National Meeting (Philadelphia, PA, August, 2008). "Electrochemical Array Sensors Based on Bipolar Electrodes" and "Synthesis, Characterization, and Electrocatalytic Properties of Well-defined PdCu Dendrimer-encapsulated Nanoparticles"
112. Gordon Research Conference on Bioanalytical Chemistry (Smithfield, RI, July, 2008). "Wireless Electrochemical DNA Microarrays"
111. Pittsburgh Conference (New Orleans, LA, March, 2008). "Electrocatalysis Using Nanoscale Bimetallic Nanoparticles"
110. 2008 Mesilla Chemistry Workshop on New Frontiers of Electrocatalysis (Mesilla, NM, February, 2008). "Electrocatalysis Using Nanoscale Bimetallic Nanoparticles"
109. Fifth Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, Sept., 2007). "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
108. 2007 Meeting of the DOE/BES Catalysis and Chemical Transformations Program (Wintergreen, VA, May, 2007) "Understanding Multimetallic Catalysts using Dendrimer-Encapsulated Nanoparticles" (poster)
107. CNM Nanomaterials Conference (The University of Texas at Austin, Austin, TX, November, 2006) "Electrocatalytic Oxygen Reduction using Well-defined PtPd Bimetallic Nanoparticles"
106. Texas Section of the Electrochemical Society (Austin, TX, October, 2006). "Electrocatalytic Oxygen Reduction using Well-defined PtPd Bimetallic Nanoparticles"
105. American Chemical Society National Meeting (San Francisco, CA, September, 2006). "Electrocatalytic O_2 Reduction at Glassy Carbon Electrodes Modified with Well-defined dendrimer-encapsulated PtPd Alloy Nanoparticles"
104. DOE-BES Analysis Research Meeting (Warrenton, VA, April, 2006). "A Fundamental Study of Transport within a Single Nanoscopic Channel"
103. Pittsburgh Conference (Orlando, FL, March, 2006). "Analytical Applications of Single-Pore Membranes Based on Carbon Nanotubes"
102. Fourth Potter's Lodge Meeting on Electrochemistry (Blue Mountain Lake, NY, September,

2005). "A Highly Sensitive Electrochemical Array Detector for DNA and Proteins"

101. Materials Research Society (San Francisco, CA, March, 2005). "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
100. Pittsburgh Conference (Orlando, FL, March, 2005). "Preconcentration of DNA using a Hydrogel-Based Transport Modulator"
99. Eastern Analytical Symposium (Somerset, NJ, November, 2004). "Characterization of Polymeric Particles using a Nanotube-Based Coulter Counter"
89. American Chemical Society ProSpectives Conference on Emerging Opportunities in Chemical and Biosensing (Santa Fe, NM, May, 2004). "ECL-Based Diagnostics: Commercial Success and Prospects for the Future"
88. William H. Nichols Distinguished Symposium (White Plains, NY, April, 2004). "Electrochemical Detection and Photonic Reporting in Microfluidic Systems"
87. Gordon Research Conference on Facilitated Chemical Synthesis (Ventura, CA, March, 2004). "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
86. Second International Symposium on Nanobiotech 2004 (Big Island, HI, January, 2004). "Coulter Counters Based on Carbon Nanotube Membranes"
85. 204th Electrochemical Society Meeting (Orlando, FL, October, 2003). "Analytical Applications of Single-Pore Membranes Based on Carbon Nanotubes" (Carl Wagner Memorial Award Address)
84. Third Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, Sept., 2003). "Electrochemistry on a Chip"
83. Gordon Research Conference on the Physics and Chemistry of Microfluidics (Big Sky, MT, August, 2003). "Electrokinetic Trapping on a Chip"
82. SmallTalk 2003 (San Jose, CA, July, 2003). "Electrogenerated Chemiluminescence as a Sensitive Detection Strategy in Microfluidic Systems"
81. Gordon Research Conference on Analytical Chemistry (New London, CT, June, 2003). "An Electrochemical-Based Nanoparticle Counter with Applications to Bioanalysis"
80. LabAutomation (Palm Springs, CA, February, 2003). "Electrochemical Detection and Photonic Reporting in Microfluidic Systems"
79. Materials Research Society (Boston, MA, December, 2002). "Composite Thin Films of Dendrimer-Encapsulated Metal Nanoparticles and Conducting Polymers"
78. SmallTalk 2002 (San Diego, CA, July, 2002). "Electrochemical Sensing in Microfluidic Systems Using Electrogenerated Chemiluminescence (ECL) as a Photonic Reporter of Redox Reactions"
77. Golden Gate Polymer Forum (San Jose, CA, May, 2002). "Selective Transport through Well-Defined Dendrimeric Polymers"
76. The Pittsburgh Conference (New Orleans, LA, March, 2002). "Molecular Filtration Using Single Porous Molecules"

75. Second Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, Sept., 2001) "Single Molecule Filtration"
74. Gordon Research Conference on Analytical Chemistry (New London, CT, June, 2001). "Dendrimer-Encapsulated Catalysts"
73. Materials Research Society (San Francisco, CA, April, 2001). "Dendrimer-Encapsulated Catalysts"
72. 199th Electrochemical Society Meeting (Washington, DC, March, 2001). "Single Carbon-Nanotube Membranes: A Well-Defined Model for Studying Mass Transport through Nanoporous Matrixes"
71. The Pittsburgh Conference (New Orleans, LA, March, 2001). "Mass Transfer through Carbon Nanotubes"
70. Gordon Research Conference on Electrochemistry (Ventura, CA, January, 2001). "Single File in a Single Pore"
69. Army Research Office Agent Water Monitors Workshop (Aberdeen Proving Grounds, MD, August, 2000) "A General Approach for High Throughput Screening of Mutant Enzymes for Remediation of Chemical an d Biological Agents Using Arrays of Living Cells"
68. American Chemical Society National Meeting (Washington, DC, August, 2000). "Patterned Arrays of Cells"
67. American Chemical Society National Meeting (Washington, DC, August, 2000). "Dendrimer-Encapsulated Nanoparticles: Applications to Catalysis"
66. Department of Energy Council on Chemical Sciences Workshop on Emergent Properties and Functions in Nanoscale Chemistry (Santa Fe, NM, April, 2000). "Template Approaches for Preparing Nanostructures"
65. American Chemical Society National Meeting (San Francisco, CA, March, 2000). "A Simple Approach for Preparing Patterned, Micron Scale Corrals for Controlling Cell Growth"
64. The Pittsburgh Conference (New Orleans, LA, March, 2000). "Electrochemical Studies at Geometrically Well-Characterized Nanoelectrode Arrays"
63. The Pittsburgh Conference (New Orleans, LA, March, 2000). "Carbon Nanotube Electrodes"
62. Materials Research Society (Boston, MA, November, 1999). "A Simple Approach for Preparing Patterned, Micron-Scale Corrals for Controlling Cell Growth: Applications to Biosensing"
61. Materials in the Heartland (Carbondale, IL, October, 1999). "Dendrimer-Encapsulated Metal and Semiconductor Nanoparticles"
60. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999). "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"
59. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999). "Electrochemistry Using Single Carbon Nanotubes and Applications to Scanning Electrochemical Microscopy"

58. American Chemical Society National Meeting (New Orleans, LA, August, 1999). "Dendrimer-Encapsulated Nanoparticles: Synthesis, Characterization, and Applications"
57. South Texas Local Section of The Electrochemical Society (Austin, TX, June, 1999). "Dendrimer-Encapsulated Metal Particles for Homogeneous and Heterogeneous Catalysis"
56. 195th Electrochemical Society Meeting (Seattle, WA, May, 1999). "Heterogeneous and Homogeneous Catalysis Using Monodisperse, Dendrimer-Encapsulated Metallic Nanoparticles"
55. 195th Electrochemical Society Meeting (Seattle, WA, May, 1999). "Electrochemistry Using Single Carbon Nanotubes"
54. Materials Research Society National Meeting (Boston, MA, November, 1998). "Deposition of Metallic Nanoclusters within Dendrimer Templates"
53. 194th Electrochemical Society National Meeting (Boston, MA, November, 1998). "Design of Chemically Sensitive Interfaces Based on Hydrophilic and Hydrophobic Dendrimers"
52. 194th Electrochemical Society National Meeting (Boston, MA, November, 1998). "Deposition of Metallic Nanoclusters within Dendrimer Templates"
51. 194th Electrochemical Society National Meeting (Boston, MA, November, 1998). "Single-Molecule Electrodes Based on Composite Dendrimer Films"
50. Federation of Analytical Chemisty and Spectroscopy Societies (Austin, TX, October, 1998). "Dendrimer Thin Films for Chemical Sensing"
49. American Vacuum Society, Rocky Mountain Regional Meeting (Arvada, CO, August, 1998) "Chemical Sensors and Interfacial Design"
48. Gordon Research Conference on Chemical Sensors and Interfacial Design (Henniker, NH, July, 1998). "Electrocatalysis using Dendrimer-Encapsulated Metal Nanoclusters"
47. 72nd American Chemical Society Colloid & Surface Science Symposium (University Park, PA, June, 1998). "Dendrimer-Confined, Nanoscopic Metal Clusters"
46. American Chemical Society National Meeting (Dallas, TX, March, 1998). "Electrocatalysts Based on Dendrimer-Confined, Nanoscopic Metal Clusters"
45. Florida Advanced Materials Chemistry Conference (Palm Coast, FL, March, 1998). "Design, Synthesis, Characterization, and Applications of Hyperbranched Polymer Films"
44. Gordon Research Conference on Electrochemistry (Ventura, CA, January, 1998). "Electrocatalysts Based on Dendrimer-Encapsulated Metal Clusters"
43. Federation of Analytical Chemists and Chemical Spectroscopists (Providence, RI, October, 1997). "Chemical Sensors Based on Surface-Confined Dendrimers"
42. 192nd Meeting of The Electrochemical Society, Inc. and the 48th Annual Meeting of the International Society of Electrochemistry (Paris, France, August/September, 1997). "Chemical Sensors Based on Surface-Confined Dendrimers"
41. American Society of Photobiology (St. Louis, MO, July, 1997). "Interfacial Design for Chemical Sensor Arrays"
40. First NSF Workshop on Chemical Sensors (Blue Mountain Lake, NY, May, 1997). "Organic Monolayers for Chemical Sensing"

39. NSF-GOALI Workshop (Keystone, CO, August, 1996). "New Materials for Chemically Sensitive Interfaces"
38. Sixth International Meeting on Chemical Sensors (Gaithersburg, MD, July, 1996). "Chemically Receptive Surfaces Based on Surface-Confined Dendrimers and Hyperbranched Polymers"
37. 190th Electrochemical Society Meeting (San Antonio, TX, October, 1996). "Surface-Confined Dendrimers as Chemically Sensitive Interfaces in SAW-based Sensor Arrays"
36. 190th Electrochemical Society Meeting (San Antonio, TX, October, 1996). "Hyperbranched Polymer Films Containing Fluorescent, Hydrophobic, Metal-ion Binding, and Electroactive Functionalities"
35. 190th Electrochemical Society Meeting (San Antonio, TX, October, 1996). "Synthesis, Characterization, and Chemical Sensitivity of Self-Assembled Polydiacetylene/Calix[n]arene Bilayers"
34. 190th Electrochemical Society Meeting (San Antonio, TX, October, 1996). "An In-situ Electrochemical STM Study of Au(111) Passivated by Self-Assembled Monolayers in Corrosive Environments"
33. Pittsburg Conference (Chicago, IL, March, 1996). "Synthesis, Structural Characterization, and Lithographic Applications of Mono- and Multilayer Diacetylenic Self-Assembled Films on Electrodes"
32. The Adhesion Society National Meeting (Myrtle Beach, SC, February, 1996). "Probing Adhesion Forces at the Molecular Scale" (Plenary talk).
31. Pacifichem '95 (Honolulu, HI, December, 1995). "Electrochemical STM Analysis of Au Corrosion and Corrosion Passivation"
30. American Chemical Society Southeast/Southwest Regional Meeting (Memphis, TN, November, 1995). "Synthesis, Structural Characterization, Photonic Properties, and Lithographic Applications of Mono- and Multilayer Diacetylenic Self-Assembled Films"
29. American Chemical Society Southeast/Southwest Regional Meeting (Memphis, TN, November, 1995). "Molecular Interactions Between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. Reactions Between Acid-Terminated Self-Assembled Monolayers and Vapor-Phases Bases"
28. Materials Research Society (Boston, MA, November, 1995). "Synthesis, Structural Characterization, Photonic Properties, and Lithographic Applications of Mono- and Multilayer Diacetylenic Self-Assembled Films"
27. 188th Electrochemical Society Meeting (Chicago, IL, October, 1995). "An Electrochemical STM Study of the Corrosion Inhibition of Au by Self-Assembled Monolayers"
26. 188th Electrochemical Society Meeting (Chicago, IL, October, 1995). "A General Approach for the Electrosynthesis of Metal-Nitride Powders and Thin Films"
25. 188th Electrochemical Society Meeting (Chicago, IL, October, 1995). "STM Lithography of Self-Assembled Monolayer Resists: Experimental Parameters Affecting Pattern Quality and Resolution"
24. American Chemical Society National Meeting (Chicago, IL, August, 1995). "A Combined Electrochemical/STM Approach for Patterning Organic Thin Films"

23. American Chemical Society National Meeting (Chicago, IL, August, 1995). "An Electrochemical Method Suitable for Preparing Nine Metal Nitride Powders"
22. American Chemical Society Colloid & Surface Science Symposium (Salt Lake City, UT, June, 1995). "Fabrication of Electrodes and Electrode Arrays Using Self-Assembled Monolayer Resists"
21. American Chemical Society National Meeting (Anaheim, CA, April, 1995). "Selective Molecular Adsorption at the Self-Assembled Monolayer/Vapor-Phase Interface"
20. American Chemical Society Southwest Regional Meeting (Ft. Worth, TX, November, 1994). "STM Lithography: Nanostructures and Nanochemistry"
19. Pittsburgh Conference on Analytical Chemistry and Applied Microscopy (Chicago, IL, March, 1994). "Characterization of Electrode-Confined Nanoporous Membranes by Scanning Tunneling Microscopy and Molecular Probes"
18. Gordon Research Conference, Organic Thin Films (Ventura, CA, February, 1994). "Synthesis and Characterization of Chemically Sensitive Organic Monolayer Surfaces"
17. 184th Electrochemical Society Meeting (New Orleans, LA, October, 1993). "Synthesis and Characterization of Arrays of Zero-Dimensional Ultramicroelectrodes"
16. 184th Electrochemical Society Meeting (New Orleans, LA, October, 1993). "Electrosynthesis and Characterization of NbN Ceramic Materials"
15. American Chemical Society Regional Meeting (Austin, TX, October, 1993). "Synthesis and Characterization of Simple Self-Assembling Nanoporous Monolayer Assemblies: A New Strategy for Molecular Recognition"
14. The First NSF Materials Chemistry Workshop (Albuquerque, NM, October, 1993). "Interfacial Force Microscopy of Metal Surfaces"
13. American Chemical Society National Meeting (Chicago, IL, August, 1993). "Synthesis and Characterization of Simple Self-Assembling Nanoporous Assemblies: Electrochemical, Scanning Probe Microscopic, and Theoretical Analyses of Two-Dimensional Molecular Recognition Membranes"
12. Gordon Research Conference, Electrochemistry (Ventura, CA, January, 1993). "Molecules and Organized Monolayers: A Basis for Molecular Recognition"
11. American Chemical Society National Meeting (Washington, D. C., 1992). "Interactions Between Ions in Solution and Monolayers of Mercaptan Derivatives Adsorbed to Au Substrates"
10. American Chemical Society National Meeting (Washington, D. C., 1992). "Electrochemical Measurement of the Acid Dissociation Constants of Surface-Confined *n*-Alkanethiol Monolayers Terminated with pH-Sensitive Pendant Groups"
9. 82nd Electrochemical Society Meeting (Toronto, Canada, October, 1992). "Hydrogen Bonding Interactions Between Vapor-Phase Probe Molecules and Functionalized Self-Assembled Monolayers: A Combined Study Using Surface Acoustic Wave Devices, FTIR Spectroscopy, and Ellipsometry"
8. 182nd Electrochemical Society Meeting (Toronto, Canada, October, 1992). "STM-Induced Lithography: A New Method for Fabricating Ultramicroelectrodes"

7. American Chemical Society National Meeting (San Francisco, CA, April, 1992). "Molecular Recognition: a New Function for Organized Monolayers on Metal Surfaces"
6. Materials Research Society (San Francisco, CA, April, 1992). "Electrochemical Routes to Ceramics and Ceramic Precursors"
5. Rocky Mountain Conference on Analytical Chemistry (Denver, CO, July, 1991). "Scanning Tunneling Microscopy of Defects Contained Within Self-Assembling Monolayers: Kinetics of Formation"
4. Federation of Analytical Chemistry and Spectroscopy Societies (Anaheim, CA, October, 1991). "Controlled Perforation of Self-Assembling *n*-Alkylthiol Monolayers"
3. Pittsburgh Conference on Analytical Chemistry and Applied Microscopy (Chicago, IL, March, 1991). "Molecular Recognition-Based Microelectrochemical Sensors"
2. Federation of Analytical Chemistry and Spectroscopies Societies, 16th Annual Meeting (Chicago, IL, February, 1989). "Electrochemical Studies in Supercritical Fluids"
1. 176th Electrochemical Society National Meeting (Los Angeles, CA, October, 1989). "Electrochemical Studies in Supercritical Fluids: CH_3CN and SO_2"

CONTRIBUTED PRESENTATIONS

35. Gordon Research Conference: The Physics and Chemistry of Microfluidics (Lucca, Italy, June, 2009). "Chemical Sensing using Large-scale Electrode Arrays" (poster)
34. MicroTAS 2003 (Squaw Valley, CA, October, 2003). "Electrochemical Detection and Photonic Reporting in a Dual-Channel, Microfluidic-Based Chemical Sensors" (poster)
33. 203rd Electrochemical Society Meeting (Paris, France, April, 2003). "Electrochemical Detection and Photonic Reporting in Microfluidic-Based Chemical Sensors"
32. American Chemical Society National Meeting (San Francisco, CA, March, 2000). "Interfacial Reactivity of Hydroxyl-Terminated Monolayers in the Absence of Solvents"
31. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999). "A Simple Lithographic Approach for Preparing Patterned, Micron-Scale Corrals for Controlling Cell Growth: Applications to Biosensing"
30. Materials Research Society National Meeting (Boston, MA, November, 1998). "Aqueous Solvation and Functionalization of Hyperbranched Polyelectrolyte Thin Films"
29. 72nd American Chemical Society Colloid & Surface Science Symposium (University Park, PA, June, 1998). "Self-Assembling Dendrimer Monolayers"
28. 1996 Solid State Sensor and Actuator Workshop (Hilton Head Island, SC, June 1996). "Versatile Materials for use as Chemically Sensitive Interfaces in SAW-Based Sensor Arrays"
27. Materials Research Society (Boston, MA, November, 1995). "A Simple Electrochemical Method for the Preparation of Nine Metal-Nitride Powders"
26. American Vacuum Society National Meeting (Minneapolis, MN, October, 1995). "STM-induced Patterning of Organomercaptan SAMs: Characterization and Control of Patterning"

25. American Vacuum Society National Meeting (Minneapolis, MN, October, 1995). "Photolithographic and STM-Induced Patterning of an Ultrathin, Self-Assembled Diacetylenic Resist"
24. American Vacuum Society National Meeting (Denver, CO, October, 1994). "STM-Induced Etching of Ultra-thin Organic Resists: Structure, Mechanism, and Post-etching Elaboration"
23. American Chemical Society National Meeting (Washington, DC, August, 1994). "Synthesis and Characterization of Self-Assembled Monolayers of ω-Functionalized Organomercaptans Containing Diacetylene Functional Groups"
22. American Chemical Society National Meeting (Washington, DC, August, 1994). "Layer-by-Layer Growth of One-Dimensional Nylon Fibers by Chemical Vapor Deposition"
21. 1994 Meeting of the Southwestern Analytical Professors (Fresno, CA, January, 1994). "Analysis of Metal Surfaces by Interfacial Force Microscopy"
20. American Chemical Society/Northwest Regional Meeting (Laramie, WY, June, 1993). "Synthesis and Characterization of Simple Self-Assembling Nanoporous Monolayer Assemblies: A New Strategy for Molecular Recognition"
19. American Chemical Society/Northwest Regional Meeting (Laramie, WY, June, 1993). "Electrochemical Synthesis of a Niobium Nitride Precursor and Characterization of Niobium Nitride Powder"
18. American Vacuum Society/New Mexico Chapter (Santa Fe, NM, April, 1993). "Contact Potential Difference Measurement of Thin, Well-Ordered Monolayer Films"
17. American Vacuum Society/New Mexico Chapter (Santa Fe, NM, April, 1993). "Scanning Tunneling Microscope-Induced Lithography of Self-Assembled n-Alkanethiol Monolayer Resists"
16. American Vacuum Society/New Mexico Chapter (Santa Fe, NM, April, 1993). "The Nano-Mechanics of Gold Films"
15. 182nd Electrochemical Society Meeting (Toronto, Canada, October, 1992). "Selective Organophosphonate Detection Using Self-Assembled Monolayers on SAW Devices"
14. Materials Research Society (San Francisco, CA, April, 1992). "Electrophoretic Deposition of Sol-Gel-Derived Ceramic Coatings"
13. 180th Electrochemical Society Meeting (Phoenix, AZ, October, 1991). "Imaging of Defect Structures Within *n*-Alkylthiol Monolayers by a Combination of Underpotential Deposition and Scanning Tunneling Microscopy"
12. 180th Electrochemical Society Meeting (Phoenix, AZ, October, 1991). "Formation, Structural Characteristics, and Reactivity of Vapor-Deposited Polyfunctional Organic Mono- and Multilayers on Au"
11. 180th Electrochemical Society Meeting (Phoenix, AZ, October, 1991). "Selective Electrostatic Binding of Ions by Monolayers of Mercaptan Derivatives Adsorbed to Au Substrates"
10. 180th Electrochemical Society Meeting (Phoenix, AZ, October, 1991). "Electrochemical Synthesis and Characterization of Metal Nitride Ceramics and Ceramic Precursors"
9. Nanoscope Scanning Tunneling Microscope Users Conference (Santa Barbara, CA, June, 1991). "STM Imaging of the Defect Structures within Self-Assembled Monolayers"

8. American Ceramics Society (Cincinnati, OH, April, 1991). "Properties of Bulk and Surface-Confined Electrolytically Generated AlN Ceramics"
7. 178th Electrochemical Society Meeting (Seattle, Washington, October, 1990). "Mechanical Properties and Formation Kinetics of Self-Assembled Monolayers"
6. Materials Research Society (San Francisco, CA, April, 1990). "Solid State Microelectrochemical Devices Employing a Solid Polymer Electrolyte"
5. Electrochemical Society, 175th National Meeting (Los Angeles, CA, October, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of Conductivity"
4. Electrochemical Society, 175th National Meeting (Los Angeles, CA, October, 1989). "Measurements of Neutron and Gamma Ray Emission Rates and Calorimetry in Electrochemical Cells Having Pd Cathodes"
3. Gordon Research Conference on Electrochemistry (Oxnard, CA, 1988). "Electrochemistry in Supercritical Organic Fluids"
2. Electrochemical Society -regional meeting (Winedale, TX, 1986). "Reaction Kinetics in Nonaqueous Near-Critical and Supercritical Fluids"
1. Gordon Research Conference on Electrochemistry (Santa Barbara, CA, 1986). "Electrochemistry in Supercritical Fluids"

SIGNIFICANT SYMPOSIA AND MEETINGS FOUNDED AND ORGANIZED

20. Organizer, Sixth Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2009).
19. Organizer, Fifth Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2007).
18. Co-organizer, Fourth Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2005; with Henry S. White).
17. Founder and Chair, Gordon-Kenan Graduate Research Seminar on Analytical Chemistry (Roscoff, France, June, 2005).
16. Chair, Gordon Research Conference on Analytical Chemistry (Roscoff, France, June, 2005).
15. Co-organizer, Third Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2003; with Henry S. White).
14. Vice Chair, Gordon Research Conference on Analytical Chemistry (New London, CT, June, 2003).
13. Co-organizer, Materials Research Society (San Francisco, CA, April, 2002), Symposium Title: "Chemical and Biological Sensors: Materials and Devices".
12. Co-organizer, Second Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2001; with Debra Rolison and Henry S. White).
11. Co-organizer, Department of Energy Council on Chemical Sciences "Workshop on Emergent Properties and Functions in Nanoscale Chemistry" (Santa Fe, NM, April, 2000).

10. Co-organizer, Federation of Analytical Chemistry and Chemical Spectroscopy (Austin, TX, October, 1998; with David E. Bergbreiter), Symposium Title: "Thin Organic Films for Chemical Sensors".
9. Co-organizer, Second NSF Workshop on Chemical Sensors (Henniker, NH, July, 1998; with Antonio J. Ricco and Jiri (Art) Janata)
8. Co-founder and co-organizer, First NSF Workshop on Chemical Sensors (Blue Mountain Lake, NY, May, 1997; with Antonio J. Ricco and Jiri (Art) Janata)
7. Co-founder and co-chairman, Gordon Research Conference on *Chemical Sensors & Interfacial Design* , July, 1996; with Antonio J. Ricco)
6. Co-founder and co-organizer, First Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 1996; with Henry S. White).
5. Co-organizer, American Chemical Society SE/SW Regional Meeting (Memphis, TN, November, 1995; with Charles H. Hussey), Symposium Title: "Spectroscopy and Electrochemistry of Surface-Bound Molecules"
4. Co-organizer, American Chemical Society Colloid & Surface Science Symposium (Salt Lake City, UT, June, 1995; with Henry S. White), Symposium Title: "Electrochemistry of Organized Molecular Interfaces"
3. Co-organizer, Electrochemical Society National Meeting (New Orleans, LA, October, 1993; with Adrian Michael), Symposium Title: "Electrochemistry in Unconventional Media and Under Extreme Conditions"
2. Co-organizer, American Chemical Society National Meeting (Washington, DC, August, 1992; with Marcin Majda), Symposium Title: "Electroanalysis and Surfaces"
1. Organizer, Electrochemical Society National Meeting (Toronto, Canada, October, 1992), Symposium Title: "Scanning Probe Microscopy and Fabrication"

RESEARCH COLLABORATORS

Research Scientists

3. Mr. John Crooks, 2008 – present (U. Texas)
2. Dr. Li Sun, 1997 – 2005 (Pine Instruments Research, RTP, NC)
1. Ms. Claudia Ross, 1990 – 1993 (Albuquerque, NM)

Visiting Scholars

5. Mr. Eoin Sheridan, 2008 (Forster research group, Dublin City University)
4. Dr. Frank Dalton, 2004 (Pine Instruments Research, RTP, NC)
3. Dr. Jyh-Myng Zen, 2003 (Natl. Chung Hsing Univ., Taiwan)
2. Mr. Michael Lennartz, 1999 (Univ. Bonn, Bonn, Germany)
1. Dr. Atsushi Aoki, 1999-2000 (Nagoya Inst. Tech., Nagoya, Japan)

Postdoctoral

53. Dr. Eoin Sheridan, 2009 - present (U. Texas)
52. Dr. Arther Gates, 2008 – present (U. Texas)
51. Dr. Byoung-Yong Chang, 2008 – present (U. Texas)
50. Dr. Derek R. Laws, 2008 – present (U. Texas)
49. Dr. François Mavré, 2007 - 2009 (University Paris Diderot-Paris 7)
48. Dr. Rahul Dhopeshwarkar, 2007 – 2008 (U. North Carolina)
47. Dr. Iksoo Shin, 2007 - 2008 (unknown)
46. Dr. Fco. Javier Guerra Navarro, 2006 - 2008 (Universidad de Castilla-La Mancha)
45. Dr. Arnaud Chovin, 2005 - 2006 (University Paris Diderot-Paris 7)
44. Dr. Young Jin Jeon, 2004 - 2006 (Konkuk Univ., Korea)
43. Dr. Nokyoung Park, 2004 (unknown)
42. Dr. Marc R. Knecht, 2004 - 2007 (University of Kentucky)
41. Dr. Sungwon Lee, 2004 – 2005 (unknown)
40. Dr. Marcos Malta dos Santos, 2004 – 2005 (Brazil)
39. Dr. Haohao Lin, 2004 – 2005 (3M, Austin, TX)
38. Dr. Young-Min Bae, 2004 – 2005 (Korea)
37. Dr. Daojun Liu, 2003 – 2004 (Medical Dept., Shantou Univ., China)
36. Dr. Joaquin C. Garcia-Martinez, 2003 – 2005 (Universidad de Castilla-La Mancha)
35. Dr. Jinhua Dai, 2002 - 2004 (Michigan State University)
34. Dr. Robert W. J. Scott, 2002 – 2004 (U. Saskatchewan, Canada)
33. Dr. Stephen Bell, 2001 - 2003 (Halliburton, Houston, TX)
32. Dr. Takashi Ito, 2001 - 2004 (Kansas State Univ.)
31. Dr. Gi Hun Seong, 2001 - 2003 (Hanyang Univ., Seoul, So. Korea)
30. Dr. Sang Keun Oh, 2000-2004 (Ajou University, Ajou, So. Korea)
29. Dr. Julio Alvarez, 2000-2004 (Virginia Commonwealth U.)
28. Dr. K. Joseph Thomas, 2000-2002 (Becton-Dickinson Tech., RTP, NC)
27. Dr. Lee K. Yeung, 1999-2000 (Dow Chemical Co., Freeport, Texas)
26. Dr. Buford Lemon, 1999-2001 (Dow Chemical Co., Midland, MI)
25. Dr. Mi-Kyung Oh, 1998-1999 (Boston)
24. Dr. Pradyut Ghosh, 1998-2000 (Bhavnagar Res. Inst., India)
23. Dr. Sheela Berchmans, 1998-1999 (Cent. Electrochemical Res. Inst., India)
22. Dr. Victor Chechik, 1998-1999 (University of York, York, UK)
21. Dr. Charles R. Sabapathy, 1998-2000 (Dallas Independent School System)
20. Dr. William Lackowski, 1997-2000 (Univ. of Texas)

19. Dr. Maurie Garcia, 1997-1998 (Florida)
18. Dr. Robert Peez, 1997-1998 (Maxit Holding, Freiburg, Germany)
17. Dr. Andreas Hierlemann, 1997-1998 (ETH, Zürich, Switzerland)
16. Dr. Hideo Tokuhisa, 1996-1998 (Natl. Inst. Adv. Res., Tsukuba, Japan)
15. Dr. Bizuneh Workie, 1996-1997 (Jackson St. Univ., Jackson, MS)
14. Dr. Merlin Bruening, 1995-1997 (Michigan State Univ., E. Lansing, MI)
13. Dr. Vimala Mariagnanam, 1995-1996 (Cibavision, GA)
12. Dr. Lenny Tender, 1995 (Naval Research Lab, Washington, DC)
11. Dr. Kwok-Chu Chan, 1994-1996 (unknown)
10. Dr. Laurel Knott, 1994-1996 (U. North Carolina, Chapel Hill, NC)
9. Dr. Huey Yang, 1993-1996 (unknown)
8. Dr. Taisun Kim, 1993-1995 (Hallym University, S. Korea)
7. Dr. Yinquan Li, 1993-1995 (unknown)
6. Dr. Chuanjing Xu, 1993-1994 (Nanomaterials Res. Corp, Tucson, AZ)
5. Dr. Mark Bryant, 1991-1993 (Manchester Coll., N. Manchester, IN)
4. Dr. Yining Zhang, 1991-1993 (unknown)
3. Dr. Larry Kepley, 1991-1992 (TPL, Inc., Albquerque, NM)
2. Dr. Jongman Park, 1991-1992 (unknown)
1. Dr. Li Sun, 1991-1993 (Pine Instruments, RTP, NC)

Graduate Students

Mr. Stephen Fosdick (2009 – present)

Mr. David Yancey (2009 – present)

Ms. Daphne Sung (2009 – present)

Ms. Elizabeth Nettleton (2008 – present)

Mr. Brian Zaccheo (2007 - present)

Ms. Christina Wales (2006 - present)

Ms. Susie Myers (2006 - present)

Ms. Emily Carino (2006 - present)

Mr. Michael G. Weir (2005 - present)

Mr. Kwok-Fan Chow (2005 - present)

- Significant awards and honors: UT Chemistry Department Dorothy B. Banks Fellowship.

Ms. Robbyn K. Perdue (2004 – present)

- NSF Graduate Fellowship Awardee

20. Mr. Tim Balasavage; M.S., August, 2009.

19. Dr. Joohoon Kim; Ph. D., August, 2007

- Dissertation title: "Development of Microdevices for Applications to Bioanalysis"
- Significant awards and honors: ACS Division of Analytical Chemistry Summer Fellowship.
- Current employment: Assistant Professor, Kyung Hee University (Seoul, South Korea).

18. Dr. Rahul Dhopeshwarkar ; Ph. D., August, 2007.

- Dissertation title: "Electrokinetic Concentration Enrichment within a Microfluidic Device Integrated with a Hydrogel Microplug"
- Current employment: Postdoctoral Associate, The University of North Carolina (Chapel Hill, NC).

17. Dr. Heechang Ye; Ph. D., December, 2006.

- Dissertation title: "Dendrimer-Encapsulated Metal Nanoparticle Thin Films on Solid Surfaces: Preparation, Characterization, and Applications to Electrocatalysis"
- Current employment: Postdoctoral Associate, The University of Texas at Austin (Austin, TX)

16. Mr. Raphael Lezutekong; M.S., August, 2006

- Thesis title: "Application of Dendrimer-Encapsulated Pd Nanoparticles in Homogeneous Catalysis: Carbon-Carbon Coupling Reaction (The Stille Reaction)"

15. Dr. Orla M. Wilson; Ph. D., December, 2005

- Dissertation title: "Structure-Function Relationships in Dendrimer-Encapsulated Metal Nanoparticles"
- Significant awards and honors: ACS Division of Analytical Chemistry Summer Fellowship.
- Current employment: Lecturer, The Johns Hopkins University (Baltimore, MD).

14. Dr. Jinseok Heo; Ph. D., December, 2005

- Dissertation title: "Characterization and Applications of Microfluidic Devices Based on Immobilized Biomaterials"
- Current employment: Postdoctoral Associate, SUNY-Buffalo (Buffalo, NY)

13. Dr. Yong-Gu Kim; Ph. D., December, 2005

- Dissertation title: "Synthesis and Electrochemical Characterization of Highly Monodisperse Dendrimer-Templated Monolayer-Protected Clusters"
- Current employment: Hyundai Motors, Korea

12. Dr. Wei Zhan; Ph. D., May, 2004
    - Dissertation title: "Integration of Functional Components into Microfluidic Chemical Systems: Bioimmobilization and Electrochemiluminescent Detection on Chip"
    - Significant awards and honors: 2004 Celanese Outstanding Graduate Student Award; ACS Division of Analytical Chemistry Summer Fellowship.
    - Current employment: Assistant Professor, Auburn Univesity (Auburn, AL)

11. Dr. Gregory P. Perez; Ph. D., May, 2004
    - Dissertation title: "Chemically-Sensitive, Polymer-Mediated Nanoporous Alumina SAW Sensors for the Detection of Vapor-Phase Analytes"
    - Current employment: Halliburton (Houston, TX)

10. Dr. Yanhui Niu; Ph. D., May, 2003
    - Dissertation title: "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Applications to Catalysis"
    - Significant awards and honors: Best Poster Presentation Award, Gordon Research Conference on Catalysis; Outstanding Research Presentation Award, PacifiChem 2000 International Meeting.
    - Current employment: Research Scientist, DuPont Central Research (Wilmington, DE)

9. Dr. Wendy S. Baker; Ph. D., May, 2002
    - Dissertation title: "Electrochemical and Spectroscopic Studies of Novel Electroactive Nanostructures"
    - Significant awards and honors: The Colin Garfield Fink Fellowship of The Electrochemical Society.
    - Current employment: Postdoctoral Fellow, University of Texas Medical Branch (Galveston, TX)

8. Dr. Lane A. Baker; Ph. D., December, 2001
    - Dissertation title: "Endgroup Interactions in Poly(amidoamine) and Modified Poly(propylene imine) Dendrimers"
    - Current Employment: Assistant Professor, Indiana University (Bloomington, IN)

7. Dr. Mingqi Zhao; Ph. D., December, 1999
    - Dissertation title: "Hyperbranched Polymer Films and Dendrimers: Their Chemistry and Applications"
    - Significant awards and honors: Electrochemical Society Summer Fellowship, Eastman Chemical Company Fellowship, Phillips Petroleum Fellowship, Materials Research Society Graduate Student Award (Gold Medal), Celanese Award for best dissertation.
    - Current employment: NDC (a J&J company in Fremont, CA).

6. Dr. Daniel L. Dermody; Ph. D., December, 1998
    - Dissertation title: "Synthesis and Characterization of Organic Thin Films Incorporating Macrocycles"
    - Current employment: Research Scientist, Dow Chemical Company (Midland, MI)

5. Dr. Francis P. Zamborini; Ph. D., December, 1998
    - Dissertation title: "Scanning Tunneling Microscopy Studies of Corrosion Passivation and Nanometer-Scale Lithography with Self-Assembled Monolayers"
    - Current employment: Associate Professor, University of Louisville (Louisville, KY)

4. Dr. Jonathan Schoer; Ph. D., May, 1997
    - Dissertation title: "Fabrication, Characterization, and Applications of Nanometer-Scale Features within Organomercaptan Self-Assembled Monolayers"
    - Significant awards and honors: Electrochemical Society Summer Fellowship, IBM Graduate Fellowship
    - Current employment: Assistant Professor, Valparaiso University (Valparaiso, IN).

3. Dr. Travis Wade; Ph. D., December, 1995.
    - Dissertation title: “Electrochemical Synthesis of Metal-Nitride Ceramic Powders and Metal-Nitride Ceramic Coatings”
    - Current employment: Institut De Physique Experimentale (Lausanne, Switzerland)

2. Dr. Orawon Chailapakul; Ph. D., December, 1994
    - Dissertation title: “Synthesis and Characterization of Nanoporous Organomercaptan Self-Assembling Monolayers“
    - Current employment: Assistant Professor, Chulalongkorn University (Bangkok, Thailand).

1. Dr. Ross C. Thomas; Ph. D., December, 1994
    - Dissertation title: “Chemical Reactivity and Mechanical Properties of Well-Ordered Organic Films Confined to Conducting Substrates”
    - Current employment: President and founder, Syntrotek Corp. (Boulder, CO).

Undergraduate Students

21. Mr. Allen Chen, 2007 (Rice undergraduate)
20. Mr. Michael Gabay, 2006 - present (UT undergraduate)
19. Mr. John Crooks, 2006 (UC-Davis undergraduate)
18. Ms. Maria Cabezas, 2006- present (UT undergraduate)
17. Mr. Mark Nguyen, 2006-2007 (UT undergraduate, presently UT Southwest Medical School)
16. Ms. Marquita D. Bradshaw, 2005 (NSF-REU student, presently in postgraduate pharmacy school at Auburn University)
15. Mr. Tom Fennewald, 2004 (NSF-REU student)
14. Ms. Robbyn Perdue, 2003 (NSF-REU student, presently a graduate student at UT-Austin)

13. Mr. Nathan Gaubert, 2003 (NSF-REU student, presently a graduate student at Ohio State U.)
12. Ms. Meghan Campbell, 2002 (NSF REU student, presently an undergrad at Northwestern U.)
11. Ms. Erin Docking, 2001 (Dow Chemical Company, Freeport, TX)
10. Mr. Stephen Hansen, 2000 - 2001 (location unknown)
9. Ms. Melissa Wheeler, 2000 (Forensic chemist, DEA, San Francisco)
8. Ms. Janell Neulinger, 1999 (Chemistry graduate student at UC-Berkeley)
7. Mr. Garrett Slaton, 1999 (Chemistry graduate student at TAMU)
6. Mr. Grant Edwards, 1998, 1999 (Chemistry graduate student at Iowa State University)
5. Mr. Vy Phan, 1997 (location unknown)
4. Mr. Stephen Willis, 1996 (location unknown)
3. Ms. Robin Dahlgren, 1995 (Ph.D., U. Illinois 2002, current location unknown)
2. Mr. Greg Perez, 1993-1994 (Halliburton, Houston, TX)
1. Mr. Bryan Johnson, 1990 (Currently employed at 3M Corporation)