

Invited Lectures at Professional Meetings

- (1) "Summary of Recent Research Activities", May 1989, National Science Foundation Workshop on Reactive Intermediates, Rougemont, NC.
- (2) "Substituent Effects on Carbocation Reactivity: New Insights Onto an Old Problem", September 1991, Okazaki Conference, Okazaki, Japan.
- (3) "How Does a Reaction Choose its Mechanism? Stepwise and Concerted Substitution Reactions at Ring-Substituted Benzyl and Cumyl Derivatives", October 1991, 4th Kyushu International Symposium on Physical Organic Chemistry, Kyushu, Japan.
- (4) "Structure-Reactivity Relationships for Carbocation-Nucleophile Combination Reactions", October 1991, Tsukuba Conference on High Energy Organic Molecules, Tsukuba, Japan.
- (5) "Substituent Effects on Carbocation Reactivity: New Insights Onto an Old Problem", May 1992, 24th ACS Central Regional Meeting, Cincinnati, OH.
- (6) "Resolution of the Mechanisms and the Spectrum of Transition State Structures for Nucleophilic Substitution Reactions at Benzyl Chlorides", August 1992, 11th IUPAC Conference on Physical Organic Chemistry, Ithaca, NY.
- (7) "The Mechanism of Methylglyoxal Formation from Triose Phosphates", December 1992, Biochemical Society Colloquium on Glyoxylases, London, United Kingdom.
- (8) "A Bridge Between Carbocations which Follow the Reactivity 'Principle' and the N_+ Scale" [Presented by T. L. Amyes], January 1993, Royal Society of Chemistry Symposium on Mechanistically Directed Organic Syntheses, London, United Kingdom.
- (9) "Discrimination and Rationalization of Stepwise and Concerted Solvolysis Reaction Mechanisms at Saturated Carbon", June 1993, 76th Canadian Society of Chemistry Conference, Sherbrooke, Canada.
- (10) "Formation and Stability of Reactive Intermediates of Organic Reactions in Aqueous Solution" [Presented by T. L. Amyes], July 1993, 4th European Symposium on Organic Reactivity, Newcastle Upon Tyne, United Kingdom.
- (11) "Formation and Stability of Simple Carbanions and Carbocation Reaction Intermediates in Aqueous Solution", October 1993, 5th Kyushu International Symposium on Physical Organic Chemistry, Kyushu, Japan.
- (12) "On the Mechanism of Galactosyl Transfer Catalyzed by β -Galactosidase from *E. Coli*", April 1995, 209th ACS National Meeting, Anaheim, CA.
- (13) "A Consideration of the Barrier for Carbocation-Nucleophile Combination Reactions", May 1995, 78th Canadian Society of Chemistry Conference, Guelph, Canada.
- (14) "Experimental Studies on the Equilibrium Stability and Kinetic Reactivity of Simple Carbocations in Aqueous Solution", July 1995, 6th Kyushu International Symposium on Physical Organic Chemistry, Kyushu, Japan.
- (15) "How do Reactions Choose their Mechanisms: Nucleophilic Substitution and Alkene-Forming Elimination Reactions", December 1995, International Chemical Congress of Pacific Basin Societies, Honolulu, HI.

- (16) "Mechanism of Acid-Catalyzed Hydrolysis of Ring-Substituted Benzyl *Gem*-Diazides: A Novel "Clock" for the Lifetimes of Ion Pair Intermediates" [Presented by T. L. Amyes], December 1995, International Chemical Congress of Pacific Basin Societies, Honolulu, HI.
- (17) "The Use of Deuterium Perturbation of ^1H Chemical Shifts in the Study of Proton and Hydride Transfer Reactions", May 1996, 5th Annual Meeting of the Canadian Chapter of the International Isotope Society, Toronto, Canada.
- (18) "Structure-Reactivity Relationships on β -Galactosidase-Catalyzed Synthesis and Cleavage of Glycosides", September 1996, 7th International Conference on Correlation Analysis in Chemistry, Fukuoka, Japan.
- (19) " β -Galactosidase-Catalyzed Hydrolysis of Glycosides: An $\text{S}_{\text{N}}1$ Reaction in an Enzyme Active Site", November 1996, Ingold Award Symposium, London, United Kingdom.
- (20) "Summary of Recent Research Activities", June 1997, National Science Foundation Workshop on Physical Organic Chemistry, Ward, CO.
- (21) "Structure-Reactivity Studies on Glycoside Cleavage Reactions Catalyzed by β -Galactosidase", July 1997, Gordon Conference on Enzymes, Coenzymes and Metabolic Pathways, Meriden, NH.
- (22) "Imperatives for Enzymatic Catalysis of Aldose-Ketose Isomerization of Sugars and Sugar Phosphates", July 1997, 6th European Symposium on Organic Reactivity, Louvain-la-Neuve, Belgium.
- (23) "How Do Reaction Mechanisms Change? Specific and General Acid Catalysis of Cleavage of Benzaldehyde Acetals and the Lifetimes of α -Alkoxy Benzyl Carbocation Intermediates", November 1997, 5th Chemical Conference of North America, Cancun, Mexico.
- (24) "Generation and Stability of Amino Acid Enolates and their Derivatives at Neutral pH in Aqueous Solution", December 1997, 7th Kyushu International Symposium on Physical Organic Chemistry, Kyushu, Japan.
- (25) "Structure-Reactivity Correlations for Addition of Nucleophiles to a Simple Quinone Methide", April 1998, 215th ACS National Meeting, Dallas, TX.
- (26) "Enzymatic Enhancement of Brønsted Acid Catalysis of the Cleavage of Acetals", June 1998, 81st Canadian Society of Chemistry Conference, Whistler, Canada.
- (27) "Intrinsic Barriers to the Formation and Reaction of Carbocations", August 1998, 14th IUPAC Conference on Physical Organic Chemistry, Florianópolis, Brazil.
- (28) "Dynamics for Reactions of Carbocation-Anion Pairs in Aqueous Solution", September 1999, 8th Kyushu International Symposium on Physical Organic Chemistry, Kyushu, Japan.
- (29) "Substituent Effects on the Acidity of Weak Carbon Acids in Water", July 2000, 15th IUPAC Conference on Physical Organic Chemistry, Göteborg, Sweden.
- (30) "Determination of the $\text{p}K_{\text{a}}$ s of Weak Carbon Acids in Aqueous Solution: Substituent Effects and Marcus Intrinsic Barriers", December 2000, International Chemical Congress of Pacific Basin Societies, Honolulu, HI.
- (31) "Catalysis of Bioorganic Reactions: Proton Transfer, Hydride Transfer and Aldol Condensation", November 2001, Symposium on Organic Reaction Mechanisms, Himeji, Japan.

- (32) "Carbon and Oxygen Nucleophilicity of Phenol Towards Addition to the 1-(4-Methoxyphenyl)ethyl Carbocation", November 2001, 9th Kyushu International Symposium on Physical Organic Chemistry, Kyushu, Japan.
- (33) "Primary Kinetic Isotope Effects and Intrinsic Reaction Barriers for Proton Transfer at Carbon", February 2002, Gordon Conference on Isotopes in Biological and Chemical Sciences, Ventura, CA.
- (34) "Studies on the Mechanism for Enzymatic Catalysis of Proton Transfer at Carbon" August 2002, 6th IUPAC Conference on Bioorganic Chemistry, Toronto, Canada.
- (35) "Studies on the Mechanism for Catalysis of Proton Transfer at Carbon" June, 2003, Steenbock Symposium on Coenzymes, Enzymes and Catalysis, Madison, WI.
- (36) "Dynamics of Ion-Pair Intermediates of Solvolysis" September, 2003, 7th Latin American Conference on Physical Organic Chemistry, Florianopolis, Brazil.
- (37) "Cooperativity in Metal Ion Catalysis of Phosphate Diester Hydrolysis" October 2003, 10th Kyushu International Symposium on Physical Organic Chemistry, Kyushu, Japan.
- (38) "Primary Kinetic Isotope Effects and Intrinsic Reaction Barriers for Proton Transfer at Carbon", February 2004, Gordon Conference on Isotopes in Biological and Chemical Sciences, Ventura, CA.
- (39) "What Makes a Small Molecule a Good Catalyst? Studies on Catalysis of Phosphate Diester Cleavage by Metal-Ion Complexes" June 2004, 7th International Symposium on Biomolecular Chemistry, Sheffield, United Kingdom.
- (40) "Formation and Stability of Carbocations and Carbanions in Water and Intrinsic Barriers to Their Reactions", July 2004, Reaction Mechanisms VII, Dublin, Ireland.