

CURRICULUM VITAE
Rudolph A. Abramovitch

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PRESENT POSITION: Professor of Chemistry, Clemson University

CITIZENSHIP: U.S.

Undergraduate Training:

B.Sc. (Special Chemistry), 1st Class Honours, Farouk 1st University, Alexandria, 1950.

B.Sc. (Special Chemistry), external London, England, 1st Class Honours, June, 1950.

Graduate Training:

King's College, London (Supervisor: Professor D. H. Hey) October, 1951 - December, 1953,
Ph.D. (Organic Chemistry), 1953.

Experience:

1946 - 1951 Senior teacher of science and mathematics at Menasce High
School Principal for fifteen months.

1954 - Medical Research Council Post Doctoral Fellow, University of

1955 - Research Chemist, Weizmann Institute, Rehovoth, Israel.

Nov 1955 - Sept 1957 I.C.I. Postdoctoral Research Fellow, King's College, University of

Sept 1957 - June 1961 Assistant Professor of Chemistry, University of Saskatchewan,

July 1961 - June 1964	Associate Professor of Chemistry, University of Saskatchewan.
July 1964 - 1967	Professor of Chemistry, University of Saskatchewan.
Dec 1967 - 1970	Professor of Chemistry, University of Alabama.
1970 - 1977	Research Professor, University of Alabama.
1977 - 1982	Head, Department of Chemistry and Geology, Clemson
1966 - 1973	Consultant to Warner-Lambert Research Institute, Morris Plains,
1970 -	Consultant to Columbia Organic Chemicals, Columbia, SC.
1972- 1979	Consultant to Mead Johnson, Evansville, IN.
1973 - 1976	Consultant to Shell Development, Modesto, CA.
1971, 1972, 1973	Consultant to ICI, Mond Division, Runcorn, England.
1982 - 1983	Consultant to Hooker Chemical Co., Niagara Falls, N.Y.
1983 (May - Aug)	Professeur Associé, Université d'Aix Marseille III, France.
1983 - 1984	Emilio Noelting Chair, Université de Haute Alsace, Ecole)
1984	Visiting Professor, Institut de Chimie des Substances Naturelles, CNRS, Gif-sur-Yvette, France.
1987	Visiting Professor, Tsinghua University, Beijing, China.
1989	George-Elie Amyot Lectureship, Laval University, Québec, Canada.
1991	Visiting Professor, Universitat Autònoma de Barcelona, Spain.
1991	Fulbright Exchange Lecturer, Lisboa, Portugal.

Awards:

Keddey-Fletcher-Warr Studentship of the University of London (1952-1953).

Elected to Fellowship of the Chemical Institute of Canada 1960.

D.Sc., (University of London), 1964.

Selected one of ten scientists for exchange program for 1967 between Governments of France and Canada. Spent a month lecturing in French Universities and research institutes as guest of the French Chemical Society.

Outstanding Educators of America Award 1971.

Nominated to Personalities of the South 1972, 1973, 1974.

1981 Sigma Xi Award - Outstanding Research Scientist.

Fulbright Grant to France, 1983.

Exchange Professor with University of Marseille, France, 1983.

Emilio Noelting Professor, Mulhouse, France, 1983.

Fulbright Exchange Lecturer, Lisboa, Portugal, 26 - 30 July, 1991.

Clemson University Research Foundation : **CERTIFICATE OF EXCELLENCE** for research accomplishments: "*In situ Remediation of Soils Contaminated with Toxic Metal Ions Using Microwave Energy*". April 7th, 2004.

Membership in Learned Societies:

American Chemical Society
Fellow of the Chemical Institute of Canada
Fellow of the Chemical Society (London)
International Microwave Power Institute

Offices Held (not including Community service):

1959 Chairman, N. Saskatchewan Section, Chemical Institute of Canada.

1963 Treasurer, Organic Division, Chemical Institute of Canada.

1964 Secretary, Organic Division, Chemical Institute of Canada.

- 1965 Vice-Chairman, Organic Division, Chemical Institute of Canada.
- 1966 - 1967 Chairman, Organic Division, Chemical Institute of Canada.
- 1963 - 1965 Chairman, University Lectures Committee, University of Saskatchewan.
- 1969 Member of the Executive Committee, Alabama Section, ACS.
- 1971 National Institute of Health, Medicinal Chemistry B Study Section Member.
- 1972 Chairman, Organic Chemistry Program, 45th-Annual Meeting, Southeastern
- 1973 - 1974 President A & S Faculty Senate. (University of Alabama).
- 1975 Chairman, Gordon Conference on Chemistry of Heterocyclic Compounds.
- 1983 Chairman, "Fundamental Heterocyclic Chemistry Symposium," American Chemical Society National Meeting, Seattle, Washington, March, 1983.
- 1997 Chairman, "Microwave Chemistry Symposium," American Chemical Society, Roanoke, VA.

Scientific Publications:

A total of 295 to date in learned journals with another thirty or so to be written.

Current Research Interests:

- (i) Molecular Modeling and its Application in the Synthesis of Biologically Active Macrocycles.
- (ii) Synthesis of Potential Anticancer Agents.
- (iii) Enium Ion Chemistry
- (iv) The Synthesis of Highly Strained Cyclophanes.
- (v) Microwave Chemistry: Synthesis and Mechanisms .
- (vi) Environmental Remediation of Contaminated Soils and Water Using Microwave Energy.
- (vii) Solvatopulping Using Microwave Energy -- Green Chemistry.

Other Pertinent Information:

Editor of the 2nd Edition of "Pyridine and Its Derivatives." (1969-1975).

Vol. 1-4 in the Interscience series on Heterocyclic Compounds.

Editor of the 3rd Edition of "Pyridine and Its Derivatives." (1978- 1980).

Editor of new "Advances in ..." type series on "Reactive Intermediates," published by Plenum Publishers (1977-1984).

Member of the Editorial Board of "Organic Preparations and Procedures."

Member, Editorial Board, "Heterocycles."

Member, Editorial Board, "Heterocyclic Communications."

Member, Editorial Board, "Advances in Heterocyclic Chemistry" (1975-).

Member, Editorial Advisory Board, "Recent Developments in Heterocyclic Chemistry," Council of Scientific Information, India.

Supervised the research work of about 26 Ph.D. students and a large number of M.Sc. students, as well as of postdoctoral fellows.

Member of a two-man team of consultants (other member was Professor C. P. Smyth of Princeton) appointed by the Ontario Council on Graduate Studies to appraise a proposal from Lakehead University, Port Arthur, Ontario, to offer graduate work in chemistry (1968).

Nominated by President David Mathews (Alabama) to President Nixon for a Presidential Prize for Innovation.

Nominated for Texas Instrument Foundation Founder's Prize (1975).

Collaborative research with groups at the State University of Campinas, Brazil, at the University of Lisbon, Portugal, at the University of Barcelona, Spain, at the Agricultural University of Krakow, Poland, with Dr. George Cobb of the Environmental Toxicology Program at Texas Tech University (presently co-supervising a graduate student, Mr. Jim Dansik, in Env. Tox. at Clemson), and with Austin College, TX.

Administrative Experience:

High School Principal (1948-1950).

Chairman, University Lectures Committee, University of Saskatchewan (1963-1965). This was the only University Committee with a budget of its own and involved about twenty hours a week of administrative work.

Chairman, N. Saskatchewan Section, CIC. Successively treasurer, secretary, vice-chairman and chairman of the Organic Division of the national body of the Chemical Institute of Canada. Organized and chaired for first International Symposium on Synthesis which was held in Banff in 1966.

Membership in departmental and university committees, including chemistry new building committee, graduate studies executive committee, chemistry representative to colleges of pharmacy and home economics (Saskatchewan); and committee on Graduate Studies, College of A&S (Vice-chairman 1969-1970, chairman 1970-1971).

Dean's Advisory Committee (College of A&S) Committee on Promotions and Tenure (College of A&S); Executive Committee, Chemistry Department (1971-1972); Member of Graduate Council (1971-1977); Member of University Council (1974-1975); Vice-Chairman, executive committee, A&S Faculty Senate. Member, Graduate Dean Search Committee; Natural Resources Committee, University of Alabama; departmental curriculum committee; Chairman, departmental seminar committee. Prepared departmental proposal for Science Development Grant (NSF) and numerous other departmental proposals; Chairman, Faculty Senate Committee on promotions and tenure; Member, Research Development Committee; Chairman, Graduate Advisory Committee; Member, U. of A. Self Study Committee on Research; President, A&S Faculty Senate; Chairman, Gordon Heterocyclic Compounds Conference, 1975. Member, University of Alabama Faculty Senate (1975-1977). Member, Senate Educational Development Committee (1975-1976). Member, Senate Academic Affairs Committee (1976-1977). Member, Search Committee for Director of Computer Center (1976). Senate Representative on Graduate Council (1976-1977).

Head, Department of Chemistry and Geology, Clemson University (1977-1982).
Clemson University Faculty Senate (2001-2004).

Member of the Research Committee of the Faculty Senate (2001-2004).

Member of the Open Forum committee of the Faculty Senate (2001-2004).

Faculty Senate representative on the Clemson University Environmental Committee (2003-2004).

Faculty Senate COES delegation.

Graduate Academic Integrity Committee (2002-2004).

Marshal for the College of E & S (2003-2004).

Represented the University of London at the inauguration of the new president of Anderson College (2003).

Alumni Professor Nominating Committee (2001).

Ad Hoc committee concerning University proposal regarding the expected tobacco payout to the State (2001).

Chemistry honors and awards committee (1999-2004).
Chemistry Department Curriculum Committee (2004).
Assistant to the Department Head for Special Projects (2002).
Faculty Senate Representative: Graduate Academic Integrity Committee (2005).
University Marshal (2005-2006).
Director of the Organic Chemistry Labs. (2003-) -- 27 lab. sections. Generated a new curriculum for the labs.
Prepared a Handbook for Organic Teaching Assistants.
Prepared new PowerPoint presentation for the new CHEM 223 textbook.
Upgraded the organic chemistry equipment in the undergraduate labs. Purchased a VARIAN GC/MS, rotary evaporators, microwave ovens, an explosion-proof refrigerator, and upgraded the NMR spectrometer, fixed the two IR spectrometers (lasers, lenses, and printers, and put new disk drives in the computers).
Attended workshops on the Shimadzu GC/MS (Maryland, 2003), on Spartan Pro (Clemson, 2002), on PowerPoint presentations (Clemson, Sept. 2003 - April 2004).

Invited Lectures:

Over the past 35 years have given invited lectures (about 600) both abroad and in the United States, including Japan, Hawaii, England, Czechoslovakia, Yugoslavia, France, Belgium, Poland, Brazil, Hungary, Portugal, Spain, Russia, Austria, Greece, Egypt, Israel, Germany, Ireland, Italy, Holland, Hong Kong, China and Canada. **During the past five years** I have presented lectures at:

3rd National Organic Chemistry Congress of Portuguese Organic Chemistry, Covilha, Portugal (1999).

Ibn Sina Conference on Heterocyclic Chemistry, Alexandria, Egypt (2000).

Electronic Conference on synthetic Organic Chemistry (ECSOC-4) -- On-Line invited paper; Paper [a0019] at <http://www.reprints.net/ecsoc-4/> (Sept. 2000).

Joint SE/SW Regional Meeting of the American Chemical Society, New Orleans, Dec. 2000.

Invited lecture at Georgia State University, Atlanta, Feb. 2001.

Presented a paper at the SE/SW Regional Meeting of the American Chemical Society, Sept. 2000.

Lecture, Chemical Institute of Canada National Meeting, Vancouver, BC, June, 2002, Environmental Symposium.

Plenary Lecturer: Environmental Symposium, SERMACS '02, Charleston, SC, November, 2002. "Remediation of Metal Contaminants in Soil".

ACS Tour Speaker, Coronado Circuit. Gave lectures at the University of Arizona, and at the Los Alamos National Lab., Santa Fe, NM, 2001.

ACS Tour Speaker, Rocky Mountain Circuit, March 10 - 14, 2003.

Invited to the Universidad Catolica del Peru in Lima (March 2004) for discussions on Nitrene Metal Complexes.

Presented a paper at the XXVICLAQ/27 Meeting of the Sociedade Brasileira de Quimica e Federation Latinoamericana de Asociaciones Quimicas, in Salvador, Brazil (May 30th - June 2, 2004).

Submitted two papers to the SERMACS 2004 meeting:

"New Intramolecular Cyclizations of Arylnitrenium Ions."

"Green, Non-Green, and Super-Green Diels-Alder Reactions."

Presented a paper on Environmental Remediation at the University of Athens, Greece, June 2005.

Presented a paper (co-author Prof. Dorota Abramovitch) at the Meeting on Ionic Liquids in Salzburg, Austria, June 2005.

Presented a paper at the meeting of the Canadian Society of Chemistry on the topic: Novel Aromatic Compounds in St. Johns, Newfoundland, Aug. 2005.

Invited to present a number of lectures in India in Dec. 2005.

Consultantships:

1966-1973	Warner Lambert Research Insitute, Morris Plains, NJ.
1970	Columbia Organic Chemicals, Columbia, S.C.
1972-1979	Mead Johnson, Evansville, IN.
1973-1976	Shell Development, Modesto, CA.
1971-1973	I. C. I. Mond Division, Runcorn, England.
1982-1983	Hooker Chemical Co., Niagara Falls, NY.
1985-1987	Sughru-Mion, Washington, D. C. (representing Ishihara, Japan).
1991	Hoescht, Frankfurt, Germany.
1994	Wyeth-Ayerst, Princeton, NJ.
1997-1998	Gencell, CA
1997-1999	ASTRA Pharmaceuticals, Sweden.
2000	Kaye Scholer, New York, NY (representing Aventis Pharmaceuticals).
2002	APCP, Anderson, SC
2003-	Ongoing discussions with Enhanced Recovery, Inc. of Cody, Wyoming to collaborate with them on the <i>in situ</i> remediation of PCBs contaminated soil using microwave energy.

Courses Taught at Clemson:

Chem. 821, 822, 825, 891, 421, 443, 444, 427, 627, 920, 991, 223, 224, 621. (201, 201L, 227, 228, 229--twentyseven sections in all).

(Course taught at Barcelona: "Reactive Intermediates"

Course taught in Beijing:: "Heterocyclic Chemistry").

Prepared a powerpoint lecture format for CH427/627.

Preparing a new course on Heterocyclic Chemistry for Spring 2005.

Proposal in the works:

"Green Pulping of Woods, Kenaf, Kudzu and Bagasse Using Subcritical Water Using Microwave Energy." To be submitted to the Dept. of Energy and to the EPA.

Publications (past five years):

286. In Situ Decomposition of PCBs in Soil Using Microwave Energy. With Huang Bang-Zhou, Abramovitch, D. A., and Song Jiaogao. Chemosphere **1999**, 38, 2227-2237.

287. In Situ Decomposition of PAHs in Soil and Desorption of Organic Solvents Using Microwave Energy. With Huang Bang-Zhou, Abramovitch, D. A., and Song Jiaogao. Chemosphere **1999**, 39, 81-87.

288. Intramolecular Cyclizations *via* Arylnitrenium Ions. Formation of a Six-membered Ring Rather than a Macrocycle. With Xiaocong Ye. J. Org. Chem. **1999**, 64, 5904-5912.

289. Synthesis of Thiamacrocycles and Conformational Studies on their Precursors. With Xiaocong Ye, W. T. Pennington, G. Schiemek, and D. Bogdal. J. Org. Chem. **2000**, 65, 343-351.

290. The 1,2,4-Triazolyl Cation: Thermolytic and Photolytic Studies. With J. M. Beckert, H. H. Gibson, Jr., A. Belcher, G. Hundt, T. Sierra, S. Olivella, W. T. Pennington, and A. Sole. J. Org. Chem. **2001**, 66, 1242-1251.

291. Remediation of Waters Contaminated with Pentachlorophenol. With Michael Capracotta. Chemosphere **2003**, 50, 955-957.

292. *In Situ* Remediation of Soils Contaminated with Toxic Metal Ions Using Microwave Energy. With Lu Changing, E. Hicks, and J. Sinard Chemosphere **2003**, 53, 1077-1085.

293. The Formation of Medium-Sized Rings by the Intramolecular Cyclization of Arylnitrenium Ions. With Joseph Miller and Antonio J. C. de Souza. Tetrahedron Lett. **2003**, 44, 6965-6967.

294. Diastereoselective Synthesis of Cularine Alkaloids *via* Enium Ions and an Easy Entry to Isoquinolines by Aza-Wittig Electrocyclic Ring Closure. With J. A. R. Rodrigues, J. D. F. de Sousa, and G. C. Leiva. J. Org. Chem. **2004**, 69, 2920-2928.

295. Provisional patent application filed (APPL. No. 60/576,317). Filing date 06/02/2004. "*In Situ* Remediation of Soils Using Microwave Energy".

Papers in preparation:

Green, Non-Green, and Super-Green Diels-Alder Reactions, with D. A. Abramovitch.

The synthesis of *N*-hydroxypyrroles and Related Molecules: *Ab Initio* Calculations, with I. Shinkai.

Books Published

Pyridine and Its Derivatives. A Supplement.

Part 1, Interscience Publishers, New York, 1974.

Pyridine and Its Derivatives. A Supplement.

Part 2, Interscience Publishers, New York, 1974.

Pyridine and Its Derivatives. A Supplement.

Part 3, Interscience Publishers, New York, 1974.

Pyridine and Its Derivatives. A Supplement.

Part 4, Interscience Publishers, New York, 1975.

Reactive Intermediates. Vol. 1

Plenum Publishing Corp., 1980.

Reactive Intermediates. Vol. 2

Reactive Intermediates. Vol. 3