

A. GILBERT COOK

Senior Research Professor



Contact Information:

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Education:

- B.S. Chemistry, 1955, Wheaton College
- Ph.D. Organic Chemistry, 1959, University of Illinois, Urbana
- Postdoc. Cornell University

Professional Societies:

- American Chemical Society
- The Chemical Society (London)
- Indiana Academy of Science

Honor Societies:

- Phi Lambda Upsilon (chemistry)
- Pi Mu Epsilon (mathematics)
- Sigma Xi (research)

Honors or Distinctions:

- American Institute of Chemists Award - 1955
- Standard Oil Company Scholarship - 1954-55
- Monsanto Fellowship - 1957-58
- Lilly Fellowship - 1958-59
- Research Corporation Research Grant - 1960-61
- Petroleum Research Fund Grant - 1963-66
- Petroleum Research Fund Grant - 1967-70
- National Science Foundation ILI Grant - 1991
- GTE Grants for PRISMS Program (with Dean Gilbertson) - 1990 & 1993

- Appear in Volumes 23 (2006) through 26 (2009) of Marquis Who's Who in the World
- Appear in all volumes of Marquis Who's Who in America from Vol. 40 (1978-1979) through Vol. 54 (2000)
- Valparaiso University Alumni Association 1993 Distinguished Teaching Award
- Valparaiso University Premedical Arts Fellow, 1996-2004
- Wrote the Summer Workshop portion of the PSME Lilly \$1,075,000 Grant, 1996, which introduces modern chemistry equipment (such as IR and GC/MS) and experiments into Northwest Indiana high schools and middle schools.

Teaching specialty:

Organic and physical chemistry

Research interests:

Physical and synthetic organic chemistry, especially enamines, amines, and organophosphorus compounds.

Recent Student Research Associates

Aster Kammrath, BS 2002, PhD candidate, University of California, Berkeley - *Reaction of Dimethylmaleate with Enamines* Erica Duguid, BS 2002, PhD candidate, University of Chicago - *Reaction of 2-Methylaminomethanol with 2-Norbornanone* Allison Witt, BS 2001 - *Study of Enamines of 2-Methylcyclopentanones* Andrea Voges, BS 2001, PhD candidate, Northwestern University - *Reaction of Pyrrolidine Aminal of Cyclopropylcarboxaldehyde with Dimethyl Maleate* Kenny Cutler, BS 2001, PhD candidate, University of Pittsburgh - *Structure Elucidation of Enamine Formation Byproduct* Karen Switek, BS 2000, PhD candidate, University of Minnesota - *Isomer Distribution of Enamines of 2-Methylcyclohexanone* Pam Kreeger, BS 2000, PhD candidate, Northwestern University - *Reaction of Morpholine with t-Butyl Acetoacetate* Mark Kerins, BS 2000 - *NMR of Iminium Salts* Christine Schering, BS 1999, PhD candidate, Northwestern University - *The Synthesis, Stereochemistry and Pyrolysis of 2-Substituted-3-oxa-1-azabicyclo[4.4.0]decanes and of 2-Substituted-3-Oxa-1-azabicyclo[4.3.0]nonanes* Patricia Murphy, BS 1999 - *Perchlorate Oxidation of Cyclic Secondary Amines to Tertiary Amines* Sarah Folk, BS 1998, PhD 2003 North Carolina - *The Relative Distribution of Tetra- and Tri-substituted Isomers of Selected Enaminoketones* Jennifer Lazor, BS 1997 - *N-Methylpiperazine Enamine of 2-Indanone* Laura (Wesner) Eriks, BS 1996 - *A Study of Stereochemical and Solvent Effects on the Basicity of Some 2-Aminonorbornanes* Virginia (Bowden) Lehman, BS 1995, PhD 2001 University of Illinois, Urbana-Champaign - *The Chemistry of Tricyclenamines* Kristin Norlie, BS 1994, MS, JD University of Illinois, Urbana-Champaign - *Conformation Studies with Low Temperature NMR* Sarah Daubendiek, BS 1992, PhD 1997 University of Rochester, *Methodological Development of Asymmetri Synthese as Applied to the Partial Synthesis of (-)-Saudin* Paul Wischmeyer, BS 1992, MD University of Chicago, *Fecal Short Chain Fatty Acid Analysis after Ileal Pouchitis* Carol Schlueter, BS 1990, MD, PhD 1997 University of Illinois, Urbana-Champaign -

Department of Chemistry - Valparaiso University
Magnetic Resonance Imaging of Rat Brain Michelle (Pinske) Gilbertson, BS 1990,
PhD 1994 Northwestern University - *Basicities of Enamines* Karie Horvath, BS
1990 - *Reactions of Camphene and Norbornene with 50% Hypophosphorus Acid*
John Schlueter, BS 1987, PhD 1992 Northwestern University - *Determination of the
Extent of conjugation in Aliphatic Nitroenamines via Dipole Moment Measurement*

Selected Publications:

Books:

Encyclopedia of Reagents for Organic Synthesis, Edited by Leo A. Paquette, John Wiley, New York, 1994. Contributed three articles on enamines.

Enamines: Synthesis, Structure, and Reactions, Edited by A. Gilbert Cook, Marcel Dekker, New York. 1st Edition, 1969. 2nd Edition, 1988. Also contributed one chapter in the 1st Edition. Wrote or updated seven of the nine chapters in the 2nd Edition. This book is one of three authoritative sources on enamine chemistry.

Journal articles:

A. G. Cook; S. L. Folk, *Letters in Organic Chemistry*, 2008, 5, 269. "Isomer Distribution of Succinylcyclohexenyl, Acetylcyclohexenyl and Acetylcyclopentenyl Enamines."

A. G. Cook; P. M. Feltman, *J. Chem. Ed.*, 2007, 84, 1827. "Determination of Solvent Effects on Keto-Enol Equilibria of 1,3-Dicarbonyl Compounds using NMR."

A. G. Cook, *J. Chem. Ed.*, 2007, 84, 1477. "A Knoevenagel Initiated Annulation Reaction Using Room Temperature or Microwave Conditions."

A. G. Cook, C. C. Schering, P. A. Campbell, and S. S. Hayes. "Pyrolysis of Perhydro[1,2-c]oxazines: a Green Method of Synthesizing 2,3-Dehydropiperidine Enamines." *Tetrahedron Letters*, 2005, 46, 5451.

A. G. Cook, K. A. Switek, K. A. Cutler, and A. M. Witt. "Synthesis and Isomerization of 3-Pyrroline Enamines." *Letters in Organic Chemistry*, 2004, 1, 1.

A. G. Cook and J. L. Waddle. "Reaction of N-acetylimidazole with Enamines." *Tetrahedron Letters*, 2003, 44, 6923.

A. G. Cook, A. B. Voges, and A. E. Kammrath. "Aminal-catalyzed Isomerization of and Addition to Dimethyl Maleate." *Tetrahedron Letters*, 2001, 42, 7349.

A. G. Cook and P. Kreeger. "Reaction of Morpholine with t-Butyl Acetoacetate," *Journal of Chemical Education*, 2000, 77, 90.

S. C. Engerer and A. G. Cook. "The Blue Bottle Reaction as a General Chemistry Experiment on Reaction Mechanisms," *Journal of Chemical Education* 1999, 76(11), 1519-1520

A. G. Cook, L. Wesner and S. Folk. "Relative Basicities of Some Endo and Exo Norbornylamines," *Journal of Organic Chemistry* 1997, 62, 7205-7209

A. G. Cook, M. Absi and V. Bowden. "Basicity of Some Mono- and Bicyclic Enamines and Tricyclenamines," *Journal of Organic Chemistry* 1995, 60, 3169-3171

A. G. Cook, R. M. Tolliver¹ and J. E. Williams². "The Blue Bottle Experiment Revisited: How Blue? How Sweet?," *Journal of Chemical Education* 1994, 71, 160.

¹PRISMS Program participant from Roosevelt High School, Gary, IN. ²PRISMS Program participant from West Side High School, Gary, IN.

A. G. Cook. "A Quantitative Organic Analysis Using Carbon Magnetic Resonance: A Study in Enamine Isomer Distribution and Relative Stabilities," *Journal of Chemical Education* 1993, 70, 865.

J. A. Schlueter and A. G. Cook. "Studies on the Extent of Electron Delocalization in (-Nitro Enamines from Dipole Moment Measurements," *Journal of Organic Chemistry* 1989, 54, 2255.

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