

CURRICULUM VITAE

SURENDRA N. MAHAPATRO

Major Field: Organic, Physical Organic and Biological Chemistry

Academic Rank and Department: Associate Professor (1989); Professor, Department of Chemistry (1997- present)

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Education

Khallikote College, Utkal University, India, B. Sc. (Honors), 1966.

Ravenshaw College, Utkal University, M. Sc., 1968. Berhampur

University, India, Ph.D., 1977

Thesis Advisor: Professor P.S. Radhakrishnamurti

Awards (1990 -)

Academic Visitor, Oxford University, England (spring 2001; spring 2002, spring 2010)

Regis University Faculty Lecturer of the Year-2001

Visiting Scholar, University of Sydney, Sydney, NSW, Australia, spring 1996.

Fulbright Scholar, St. John's College, Belize, Central America, August 1995-January 1996.

Regis University Merit Award for excellence in teaching (1993).

Regis University Merit Award for excellence in professional activities (1992).

Recognized by the Colorado Alliance for Science for serving as a community resource in

science education in the state of Colorado (1993).

Community Involvement: I am involved in several library improvements projects in

rural colleges and universities in India, Bangladesh and Belize (Central America).

Member Study Panel

NSF Doctoral fellowship review panel (2020)

National Science Foundation, Course, Curriculum and Laboratory Improvement Program

(CCLI, 1999, 2003, and 2004)

Postdoctoral Research

The University of Texas Health Science Center at San Antonio, Texas. Postdoctoral Research Associate, March 1987 -June 1989. Advisor: Professor Neal C. Robinson.

Trinity University, San Antonio, Texas. Postdoctoral Research Associate, August 1984 - February 1987

1987. Advisor: Professor Michael P. Doyle.

Hope College, Holland, Michigan. Postdoctoral Research Associate, January 1983 - July 1984

1984. Advisor: Professor Michael P. Doyle.

University of Illinois at Chicago, Chicago, Illinois. Postdoctoral Research Associate, January 1978 - December 1979. Advisor: Professor Jan Rocek.

Research Grants

Department of Energy (Rocky Flats), Diversity in the Sciences (\$100,000.), May 2002 - December 2004.

2004.

2001 Pittsburgh Conference Memorial National College Grant, Analytical Ultraviolet-

Visible Absorption Spectroscopy in the Undergraduate Program at Regis University

(\$9,000.)

National Renewable Energy Laboratory (NREL), Golden, Colorado, Synthesis of Fluorescent Spiopyrans, September 15, 1997 - December 31, 1998; \$26,000 (subcontract).

National Institutes of Health: Academic Research Enhancement Award (AREA),
Electron Transfer at the Active Site of Cytochrome C Oxidase, May 1, 1993-April
30,
1997; \$92,145 (total costs).

National Science Foundation: Instructional Laboratory Improvement (ILI) Grant,
Molecular Fluorescence in the Undergraduate Curriculum at Regis University, July
1, 1995-June 30, 1997, \$13,306 (total costs).

American Chemical Society-Petroleum Research Fund (ACS-PRF),
Peroxydiphosphate: A Probe for the Active Site of Purple Phosphatases, March 1,
1991-August 31, 1994; \$20,000 (total costs).

Cottrell College Science Award (Research Corporation), Chemistry of
Chromium(V),
May 1, 1990-August 31, 1992; \$25,000 (total costs).

Partners in Science Grant (Research Corporation and the Gates Foundation of
Colorado), The Chromium(V) Problem in the Chromium(VI) Oxidation of Hydroxy
Acids,
June 1, 1992-December 31, 1993; \$13,000 (total costs); Partners in Science
Scholar: Ms.

Edna Donar, chemistry teacher, Columbine High School, Columbine, Colorado.
Western Alliance to Expand Student Opportunities (WAESO), Arizona State
University: Undergraduate Research Awards, 2002-2021 (\$150, 000)

Teaching Interests

Organic chemistry (two semester sequence); physical Organic Chemistry, organic synthesis, Chemistry-in-context (non-science majors), biochemistry and general chemistry.

Research Interests

Oxidation mechanisms, electron transfer in biological systems (cytochrome c oxidase),

purple phosphatases, Fenton chemistry, electrochemistry of diazonium salts and diazenes, chemistry of chromium(V), vanadium(V), and manganese(VI).

Professional Societies American Chemical Society (1983-)

Undergraduate research associates who have either completed or presently pursuing graduate studies in chemistry and biochemistry

Baltazar Gomez, Ph.D., UTHSC, San Antonio (1998)

Lenny M. Carruthers, Ph.D. UTHSC at San Antonio (2000)

Natalie Gibson, Ph.D., UTHSC at San Antonio (2003).

Karen Link, MS University of Denver (2002).

Andrew Wollacott, Penn State (2005).

Nicole Hartig, M.S., Colorado State University, Fort Collins (1996).

Apolonio Aguilar, UT Austin (1999-2005).

Kenroy Crawford, Purdue University (2006)

Joaquin Urbina, Kansas State University (2006)

Angello Aguilar, Kansas State University (2007)

Lisa Brassell, University of Colorado at Boulder (2008)

Heather Brungart, University of Colorado at Boulder (2009)

Anthony Giordano, Georgia Tech (2012)

Gina Morgan, UNC, Chapel Hill (2020)

Jake Garcia, ASU (2015-)

Tanden Hovey, University of Denver (2021-

Support of undergraduate research involving minority students. Support received from the Western Alliance to Expand student Opportunities (WAESO), Hispanic Research Center, Arizona State University, Tempe, Arizona). During past ten years more than 60 students have received stipends (\$1,000.-1500 per student) for their involvement in undergraduate research projects.

Journal Publications

Co-author of 35 publications; papers have appeared in 10 different journals.

Publications with Regis Undergraduate students as co-authors

1. J. McEvoy, N. Pham, H. Le, M. Fernandez, R. Farmer and S. Mahapatro.

Two-electron redox chemistry of p-nitro-and p-cyanobenzene diazonium hydroxides. RSC Advances. **2018**. 8, 73 pp 41762-41766.

2. C. M. Cawich, A. Ibrahim, K. Link, A. Bumgartner, M.D. Patro, S. N. Mahapatro, S.S Eaton, G.. R. Eaton, A. Levina and P.A. Lay and "Synthesis of a Pyridinium Bis[citrato(2-)oxochromate(V) and Its Ligand Exchange Reactions" Inorg. Chem, **2003**, 42, 6458-6468.

3. L.M Carruthers, C.L. Closken, K. Link, S.N. Mahapatro, M. Bikram, J-L.Du, S.S. Eaton and G.R. Eaton, "Electron Spin Relaxation in Chromium -Nitrosyl Complexes," Inorg. Chem. 1999, 38, 3529-3534.

4. P.K. Misro, S.N. Mahapatro, and G.P. Panigrahi, "Kinetics and Mechanism of Os(VIII) Catalyzed Oxidation of Cyclohexanone by Alkaline Periodate," Indian J. Chem., **1978**, 16A, 1095.

5. S.N. Mahapatro and P.K. Misro, "On the Origin of OsO₄ Catalysis in Homogenous Red-Ox Reactions of Organic Substrates by IO₄⁻, Fe(CN)₆³⁻, ClO₃⁻ and Chloramine-T," Indian J. Chem., 1979, 17A, 404.

6. S.N. Mahapatro, R.S. Panda and G.P. Panigrahi, "On the Mechanism of Peroxodiphosphate Oxidations," Indian J. Chem., **1980**, 19A, 905.

7. S.N. Mahapatro, A.K. Panda and G.P. Panigrahi, "A Novel Oxidation of 3Aminopyridine

by Peroxomonophosphoric Acid," *Curr. Sci. (India)*, 1980, 49, 227.

8. A.K. Panda, S.N. Mahapatro and G.P. Panigrahi, "Studies on Kinetics and Substituent Effect in the Oxidation of Aniline by Peroxomonophosphoric Acid," *J. Org. Chem.*, 1981, 46, 4000.

9. A.K. Panda, S.N. Mahapatro and G.P. Panigrahi, "Kinetics and Mechanism of Oxidation of 3-aminopyridine by Peroxomonophosphoric Acid," *Bull. Chem. Soc. (Japan)*, 1981, 54, 2507.

10. P.C. Samal, B.B. Pattnaik, S. Ch. Dharma Rao and S.N. Mahapatro, "Kinetics and Mechanism of Chromic Acid Oxidation of Lactic Acid," *Curr. Sci. (India)*, 1982, 51, 41.

11. S.N. Padhy, B.N. Misra, H. Pattnaik and S.N. Mahapatro, "Demonstration of Phosphatase Activity: Hydrolysis of Peroxodiphosphate. An Undergraduate Experiment," *Indian J. Chem. Educ.*, 1982, 9, 21.

12. S.N. Padhy, B.N. Misra and S.N. Mahapatro, "Peroxodiphosphate Cleavage by Alkaline Phosphatase," *Curr. Sci. (India)*, 1982, 51, 1026.

13. P.C. Samal, B.B. Pattnaik, S. Ch. Dharma Rao and S.N. Mahapatro, "Kinetics and Mechanism of Chromic Acid Oxidation of Lactic Acid," *Tetrahedron*, 1983, 39, 143.

14. S. Ch. Dharma Rao, A.K. Panda and S.N. Mahapatro, "Peroxomonophosphoric Acid Oxidations: Kinetics and Mechanism of Oxidation of Aliphatic Aldehydes," *J.*

Chem. Soc., Perkin Trans. 2., 1983, 769.

15. M.D. Patro, R.S. Panda, A.K. Panigrahi and S.N. Mahapatro, "The Nature of the Reduction Product in Pyridinium Chlorochromate and Pyridinium Dichromate Oxidations," Inorg. Chim. Acta., 1984, 86, L-5.

16. S. Ch. Dharma Rao, S.N. Padhy, B.N. Misra and S.N. Mahapatro, "Peroxodiphosphate Cleavage by Wheatgerm Acid Phosphatase," Indian J. Chem., 1984, 23A, 834.

17. M.D. Patro, R.S. Panda, A.K. Panigrahi and S.N. Mahapatro, "Mechanism of Oxidation of Mandelic Acid by Fenton's Reagent," Inorg. Chem., 1984, 23, 4119.

18. M. Senapati, G.P. Panigrahi and S.N. Mahapatro, "Pathways in Chromic Acid Oxidations: III. Kinetics and Mechanism of Oxidation of Malonic Acid," J. Org. Chem., 1985, 50, 3651.

Postdoctoral Research

19. S.N. Mahapatro, M. Krumpolc and J. Rocek, "three-electron Oxidations. 17. The

Chromium (VI) and Chromium (V) Steps in the Co-oxidation of 2-Hydroxy-2methylbutyric

Acid and 2-Propanol," J. Am. Chem. Soc., 1980, 102, 3700.

20. S. Ramesh, S.N. Mahapatro, J.H. Liu and J. Rocek, "Three-electron Oxidations.

18. Carbon-13 and Deuterium Isotope Effects in the Co-oxidation of 2-Hydroxy-2-methylbutyric Acid and 2-Propanol. Evidence for a Two-Step Mechanism," J.

Am. Chem. Soc., 1981, 103, 5172.

21. M.P. Doyle, S.N. Mahapatro and S. Van Tran, "Oxidation of Hemoglobin by Arenediazonium Salts: The Influence of Dioxygen," *Inorg. Chim. Acta.*, 1984, 92, 123.

22. M.P. Doyle and S.N. Mahapatro, "Nitric Oxide Dissociation from Trioxodinitrate (II)

in Aqueous Solution," *J. Am. Chem. Soc.*, 1985, 106, 3678.

23. M.P. Doyle, S.N. Mahapatro, C.M. VanZyl and M.R. Hester, "Electron Transfer in

the Heme Pocket of Hemoglobin," *J. Am. Chem. Soc.*, 1985, 107, 6136.

24. M.P. Doyle, J.K. Guy, K.C. Brown, S.N. Mahapatro, C.M. VanZyl and J.R.

Pladziewicz, "Outer Sphere One-Electron Reduction of Arenediazonium Salts," *J.*

Am. Chem. Soc., 1987, 109, 1536.

25. M.P. Doyle, A.H. Devia, K.E. Basset, J.W. Terpstra and S.N. Mahapatro,

"Unsymmetrical Alkenes by Carbene Coupling from Diazirine Decomposition in the

Presence of Diazo Compounds," *J. Org. Chem.*, 1987, 52, 1619.

26. M.P. Doyle, S.N. Mahapatro, A.C. Caughey, M.S. Chin, M.R. Colman, N.K. Harn

and A.E. Redwine, "Olefin Coordination with Rhodium (II) Perfluoroalkanoates in Solution," *Inorg. Chem.*, 1987, 26, 3070.

27. M.P. Doyle, S.N. Mahapatro, J.K. Guy, M.R. Hester, C.M. VanZyl and K.L.

Boundy, "Electron Transfer Between Hemoglobin and Arenediazonium Salts.

Mechanism of Heme-Aryl Iron Complex Formation," *Inorg. Chem.*, 1987, 26, 3387.

28. M.P. Doyle, S.N. Mahapatro, R.D. Broene and J.K. Guy, "Oxidation and Reduction

of Hemoproteins by Trioxodinitrate (II). The Role of Nitrosyl Hydride and Nitrite,"

J. Am. Chem. Soc., 1988, 110, 593.

29. M.P. Doyle, M.S. Shanklin, H.Q. Pho and S.N. Mahapatro, "Rhodium (II) Acetate

and Nafion-H Catalyzed Decomposition of N-Aryl Diazoamides. An Efficient Synthesis of 2 (3H)-Indolinones," *J. Org. Chem.*, 1988, 53, 1017.

30. S.N. Mahapatro and Neal C. Robinson, "Effect of Changing the Detergent Bond to

Bovine Cytochrome C Oxidase Upon its Individual Electron Transfer Steps,"

Biochemistry, 1989 29, 764.

Doctoral Research:

31. S.N. Mahapatro, P.K. Mahapatro, P.L. Nayak and M.K. Raut, "Kinetics of Bromination of Chalcones," *J. Ind. Chem. Soc.*, 1972, 49, 135.

32. P.S. Radhakrishnamurti and S.N. Mahapatro, "Kinetics and Mechanism of Oxidation of Ortho and Para Nitro Toluenes by Hexacyanoferrate (III). Unusual Reactivity of Some Hard Substrates," *Indian J. Chem.*, 1975, 13, 1029.

33. P.S. Radhakrishnamurti and S.N. Mahapatro, Kinetics and Mechanism of Permanganate Oxidation of Toluene and its Derivatives," *Indian J. Chem.*, 1975, 13, 1294.

34. P.S. Radhakrishnamurti and S.N. Mahapatro, "Kinetics and Mechanism of

Oxidation of Toluenes by Lead Tetraacetate," Indian J. Chem., 1976, 14A, 478.

35. P.S. Radhakrishnamurti and S.N. Mahapatro, "Kinetic Evidence for Radical Anions in the

Oxidation of 4-Nitro and 2,4-Dinitrotoluenes by Alkaline Hexacyanoferrate (III) in Dimethyl Sulphoxide," Indian J. Chem., 1976, 14A, 613.