

Robert A. Scott

Positions: Associate VP for Research

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Principal Research Interests:

Principal research interests involve biochemical studies and biophysical measurements of biologically important systems; specifically, the use of x-ray absorption spectroscopy (XAS) and extended x-ray absorption fine structure (EXAFS) in the elucidation of structural details of metalloprotein active sites; protein determinants of hyperthermostability, redox properties, and metal-binding specificity; archaeal transcription factors and their protein-protein and protein-DNA interactions; application of molecular and structural biology to metallobiomolecules.



Education:

- 1980-1981 National Institutes of Health Postdoctoral Fellow, Stanford University, Stanford, California (with Keith O. Hodgson)
- 1975-1980 Ph.D., Chemistry, 1980, California Institute of Technology, Pasadena, California (with Harry B. Gray)
Thesis title: "Metalloprotein Electron Transfer. Cytochrome *aa*₃ Reduction Kinetics and Theoretical Formulation of Distance Dependence"
- 1971-1975 B. S., Chemistry (*summa cum laude*), University of Illinois (with Gilbert P. Haight, Jr.)
Thesis title: "Redox Catalysis of the Hydrolysis of Phosphoester and Phosphoanhydride Bonds"

Professional Service:

- Brookhaven National Laboratory National Synchrotron Light Source X-ray Proposal Study Panel, 1989-1991.
- National Science Foundation, Member, Biophysics Advisory Panel, DMB, 1991-1997
- Board of Editors, *Journal of Inorganic Biochemistry*, 1991-1997
- Associate Editor, *Journal of Biological Inorganic Chemistry*, 1995-1997
- Editor, *Journal of Biological Inorganic Chemistry*, 1997-
- SSRL Users Organization Executive Committee, 1998-
- Editorial Advisory Board, *Biochemistry*, 1999-
- Member, Biological Spectroscopy Review Panel, Daresbury Laboratory, June 1999
- NIH NCRR Special Study Sections

Society Memberships:

- American Association for the Advancement of Science
- American Chemical Society
- American Society for Biochemistry and Molecular Biology
- Protein Society

International XAFS Society
Society of Biological Inorganic Chemistry

Research Grants:

"Electron Transfer Reactions Within Cytochrome <i>c</i> Oxidase"	\$15,000
Research Corporation Cottrell Research Grant	9/1/81-8/31/82
"Stopped-Flow Kinetics Study of Cytochrome <i>c</i> Oxidase Electron Transfer Pathways"	\$25,485
University of Illinois Research Board Beckman Research Award	11/1/81-6/30/82
"Quantitative Determination of Coordination Numbers by EXAFS Analysis"	\$10,000
American Chemical Society Petroleum Research Fund Grant	2/1/82-1/31/84
"Electron Transfer Reactions of Cytochrome <i>c</i> Oxidase"	\$7,000
NIH Biomedical Research Support Grant	4/1/81-3/31/82
"Structural Studies of Cytochrome <i>c</i> Oxidase Active Sites by X-Ray Absorption Spectroscopy", NIH Biomedical Research Support Grant	\$5,000
	4/1/82-3/31/83
"Rapid Freeze Quench X-Ray Absorption Spectroscopy for Biological Studies"	\$5,000
NIH Biomedical Research Support Grant	4/1/83-3/31/84
"Copper EXAFS Spectroscopy of Non-Blue Copper Proteins. Amine Oxidases"	\$3,000
NIH Biomedical Research Support Grant	4/1/84-3/31/85
"Electrostatic Effects in Cytochrome <i>c</i> Electron Transfer Reactions"	\$128,807
NIH GM-30975	7/1/82-6/30/85
"X-Ray Absorption Spectroscopy of Metalloenzymes"	\$230,000
NSF DMB 86-45819	7/1/85-8/30/88
"Structural and Functional Studies of Metalloenzyme Active Sites"	\$500,000
NSF CHE 87-15889 (Presidential Young Investigator Award)	6/1/85-4/30/90
"The F ₄₃₀ Cofactor of S-Methyl Coenzyme M Reductase"	\$280,000
NSF DMB 90-13276	3/1/91-2/28/95
"Metalloprotein Stability and Redox Chemistry" (joint with D. M. Kurtz)	\$563,935
NIH GM-50736	5/1/94-4/30/98
"Georgia Structural Biology Resource"	\$1,775,000
GBC98.110 (Georgia Research Alliance)	07/01/97-06/30/98
<i>Current:</i>	
"X-Ray Absorption Spectroscopy of Metalloenzymes"	\$593,027
NIH GM-42025 (since 1990)	12/01/98-11/30/02
"Topology of Archaeal Transcription Pre-Initiation Complex"	\$240,000
NSF MCB 96-31093	9/1/96-8/31/00
"The Role of Transition Metals in Biology" (joint with M. K. Johnson)	\$1,478,500
NSF DIR 90-14281 (Research Training Group Award)	07/01/95-06/30/00

Courses Taught:

University of Illinois:

Fall 1981 Physical Methods in Inorganic Chemistry (406)
Spring 1982 Bioinorganic Chemistry (407)
Fall 1982 Physical Methods in Inorganic Chemistry (406)
Spring 1983 Inorganic Seminar (405)
Fall 1983 Physical Methods in Inorganic Chemistry (406); Biological Electron Transfer (440)
Spring 1984 Advanced Descriptive Inorganic Chemistry (407)
Fall 1984 Accelerated General Chemistry Laboratory (109)
Spring 1985 Advanced Descriptive Inorganic Chemistry (407)
Fall 1985 Physical Methods in Inorganic Chemistry (406)
Spring 1986 (on leave as Beckman Fellow, Center for Advanced Study)
Fall 1986 Physical Methods in Inorganic Chemistry (406)
Chemical Fundamentals (P.Chem. Laboratory) (385)
Spring 1987 Chemical Fundamentals (P.Chem. Laboratory) (385)

University of Georgia:

Winter 1988 Advanced Inorganic Chemistry (421/621)
Fall 1988 General Chemistry (Freshman Honors) (127H/137)
Winter 1989 Physical Methods in Inorganic Chemistry (824)
Fall 1989 General Chemistry (Freshman Honors) (127H/137)
Winter 1990 Physical Methods in Inorganic Chemistry (824)
Spring 1990 Bioinorganic Chemistry (824)
Fall 1990 General Chemistry (Freshman Honors) (127H/137)
Winter 1991 Modern Inorganic Theory: Transition Metal Chemistry (821B)
Fall 1991 General Chemistry (Freshman Honors) (127H/137)
Winter 1992 Modern Inorganic Theory: Transition Metal Chemistry (821B)
Fall 1992 Intermediate Inorganic Chemistry (426/626)
Physical Methods in Inorganic Chemistry (901)
Fall 1993 Symmetry and Group Theory (821A)
Winter 1994 Physical Methods in (Bio)inorganic Chemistry (901)
Fall 1994 Symmetry and Group Theory (821A)
Winter 1995 Physical Methods in (Bio)inorganic Chemistry (822)
Fall 1995 Symmetry and Group Theory (821A)
Spring 1996 Physical Methods in (Bio)inorganic Chemistry (822)
Spring 1997 Physical Methods in (Bio)inorganic Chemistry (822)
Winter 1998 Physical Methods in (Bio)inorganic Chemistry (822)
Fall 1998 Scientific Information Acquisition and Dissemination (4500)
Spring 1999 Physical Methods in (Bio)inorganic Chemistry (8220)
Fall 1999 Scientific Information Acquisition and Dissemination (4500)