

Robert P. Houser

Assistant Professor
Department of Chemistry and Biochemistry
University of Oklahoma

SECTION I. BACKGROUND

A. EDUCATION

Ph.D., Inorganic Chemistry, University of Minnesota, Minneapolis, 1996

Dissertation: Synthesis and characterization of thiolate-bridged multicopper complexes: Modeling the Cu_A biological electron transfer site.

B.S., Chemistry, Colorado State University, Fort Collins, 1987

B. EXPERIENCE

Assistant Professor, University of Oklahoma, 1999 – present,

•Broad interests in the area of inorganic synthesis, focusing specifically on bioinorganic modeling chemistry and coordination polymers.

NIH Postdoctoral Fellow, California Institute of Technology (with Jacqueline K. Barton), 1996 – 1999

•Design and synthesis of intercalator-peptide conjugate molecules for hydrolytic cleavage of DNA.

Graduate Research/Teaching Assistant, University of Minnesota (with William B. Tolman), 1992 – 1996

•Prepared the first structurally accurate model complex for the mixed-valence, thiolate-bridged, binuclear Cu_A center found in cytochrome *c* oxidase.

Officer, United States Army, Fort Riley, Kansas, 1987 – 1991

•Platoon leader and Staff Officer in the 1st Infantry Division.

Undergraduate Research Assistant, Colorado State University (with Jack Norton), 1986 – 1987

•Kinetic studies of rhenium hydride complexes using stopped-flow techniques.

C. HONORS

2001-2006, NSF CAREER Award

1997-1999, NRSA (NIH) Postdoctoral Fellowship, Calif. Institute of Technology

1991, Bronze Star, awarded for service (Persian Gulf War)

1987, George C. Marshall ROTC Award

1987, Army ROTC Distinguished Military Graduate

D. AFFILIATIONS

American Chemical Society

American Association for the Advancement of Science

Society of Biological Inorganic Chemistry

SECTION II. RESEARCH

A. PUBLICATIONS (last 4 years, 20 total, corresponding author in bold)

Klein, E. L.; Khan, M. A.; **Houser, R. P.** "Synthesis, Characterization, and Reactivity of New Copper(II) Complexes of 2-Methylthio-*N*-(2-pyridylmethyl)acetamide" *Inorg. Chem.*, in press.

Mondal, A.; Li, Y.; Khan, M. A.; **Ross, J. H., Jr.; Houser, R. P.** "Supramolecular Copper Hydroxide Tennis Balls: Self-Assembly, Structures, and Magnetic Properties of Octanuclear [Cu₈L₈(OH)₄]⁴⁺ Clusters (HL = *N*-(2-pyridylmethyl)acetamide)" *Inorg. Chem.*, in press.

Cheng, D.; Khan, M. A.; **Houser, R. P.** "Structural Variability of Cobalt(II) Coordination Polymers: Three Polymorphs of Co₃(TMA)₂ [TMA = Trimesate, C₆H₃(COO)₃³⁻]" *Cryst. Growth Des.*, **2004**, *4*, 599-604.

Mondal, A.; Klein, E. L.; Khan, M. A.; **Houser, R. P.** "TACN-Amino Acid Conjugates and Their Copper(II) Complexes." *Inorganic Chemistry*, **2003**, *42*, 5462-5464.

Cheng, D.; Khan, M. A.; **Houser, R. P.** "Coordination Polymer Chains Derived from 1,2,4,5-Benzenetetracarboxylate and Transition Metals with Substituted Imidazole Co-Ligands." *Inorganica Chimica Acta*, **2003**, *351*, 242-250.

Cheng, D.; Khan, M. A.; **Houser, R. P.** "Copper(II) and Cobalt(II) Coordination Polymers with *N*-Methylimidazole and Bridging 1,2,4,5-Benzenetetracarboxylate: Coordination Number-Determined Sheet Topology." *Dalton Transactions*, **2002**, 4555-4560.

Cheng, D.; Khan, M. A.; **Houser, R. P.** "Novel Coordination Polymers Composed of Cobalt(II), 1,2,4,5-Benzenetetracarboxylate Ligands and Homopiperazonium Cations." *Crystal Growth and Design*, **2002**, *2*, 415-420.

Copeland, K. D.; Fitzsimons, M. P.; Houser, R. P.; **Barton, J. K.** "DNA Hydrolysis and Oxidative Cleavage by Metal-Binding Peptides Tethered to Rhodium Intercalators." *Biochemistry*, **2002**, *41*, 343-356.

Cheng, D.; Khan, M. A.; **Houser, R. P.** "Coordination Polymers Comprised of Copper(II), Trimesic Acid, and Imidazole: 3D Architecture Stabilized by Hydrogen-Bonding." *Inorganic Chemistry*, **2001**, *40*, 6858-6859.

Stephens, J. C.; Khan, M. A.; **Houser, R. P.** "Copper(II) Acetate Complexes, $[\text{CuL}_m(\text{OAc})_2]_n$ ($\text{L} = \text{HNPPH}_3$), Stable in the Solid State Either as a Dimer ($m = 1, n = 2$) or a Monomer ($m = 2, n = 1$)." *Inorganic Chemistry*, **2001**, *40*, 5064-5065.

B. CURRENT RESEARCH SUPPORT

National Science Foundation CAREER Award

P.I.: Robert P. Houser
Project title: Models for Metal Active Sites in Proteins
Grant period: March 2001 – February 2006
Amount awarded: \$435,000

The Herman Frasch Foundation

P.I.: Robert P. Houser
Project title: Copper-Containing Enzymes in the Bacterial Denitrification Pathway: Synthesis of Inorganic Complexes that Model Nitrite Reductase and Nitrous Oxide Reductase
Grant period: July 2002 – June 2007
Amount awarded: \$200,000 (direct costs only)

National Science Foundation – Major Research Instrumentation

Co-P.I.s: Brian Grady (18%), Daniel Resasco (18%), Robert P. Houser (18%), Rudolf Wehmschulte (18%), Vassilios Sikavitsas (18%), five others (2% each)
Project title: Acquisition of X-ray Scattering Systems for the Characterization of Nanostructured Materials
Submitted: January 2004
Grant period: August 2004 - July 2005
Amount requested: \$474,842 (direct costs only)

C. INVITED SEMINARS

Universities

Utah State University, 25 February 2004, Logan, Utah.
University of Utah, 24 February 2004, Salt Lake City, Utah.
Anorganisch-Chemisches Institut der WWU Münster, 7 November 2003, Münster, Germany.
Max Planck Institut für Bioanorganische Chemie, 5 November 2003, Mülheim a.d. Ruhr, Germany.
Technische Universität Berlin, 3 November 2003, Berlin, Germany.
Texas A & M University, 29 October 2003, College Station, TX.
University of Colorado, 2 October 2003, Boulder, CO.
Colorado State University, 30 September 2003, Fort Collins, CO.
University of Wyoming, 29 September 2003, Laramie, WY.
University of Texas at Dallas, October 2000, Richardson, TX.

Colleges

Cameron University, 2 March 2004, Lawton, OK
Trinity University, November 2001, San Antonio, TX.
Texas Lutheran University, November 2001, Seguin, TX.
Southwestern Oklahoma State University, April 2001, Weatherford, OK.

D. CONTRIBUTED LECTURES PRESENTED AT MEETINGS (last three years, 9 total, corresponding author in bold, *presenting author)

***Houser, R. P.**; Mondal, A.; Klein, E. L. "Octanuclear Copper(II) Clusters: Progress Toward Modeling the Cu_2 Cluster from Nitrous Oxide Reductase" 227th *American Chemical Society National Meeting*, March 2004, Anaheim, CA.

*Klein, E. L.; Khan, M. A.; **Houser, R. P.** "Synthetic Models of the Perturbed Type I Copper Center from Nitrite Reductase: Novel Thiolate/Thioether Copper(II) Complexes" 227th *American Chemical Society National Meeting*, March 2004, Anaheim, CA.

*Cheng, D.; Xu, H.; **Houser, R. P.** "1D Coordination Polymers Composed of Copper(II), Trimesic Acid and Imidazole" 59th *Southwest Regional Meeting of the American Chemical Society*, October 2003, Oklahoma City, OK.

*Klein, E. L.; **Houser, R. P.** "Modeling the Copper-Containing Nitrite Reductase Active Site: Synthesis and Characterization of Novel $\text{N}_2\text{S}(\text{Thiolate})\text{S}(\text{Thioether})$ Copper Complexes" 59th *Southwest Regional Meeting of the American Chemical Society*, October 2003, Oklahoma City, OK.

***Houser, R. P.**; Mondal, A.; Klein, E. L.; Khan, M. A. "Progress Toward Model Complexes of the Active Site in the Denitrifying Enzyme Nitrite Reductase" 225th *American Chemical Society National Meeting*, March 2003, New Orleans, LA.

***Houser, R. P.**; Cheng, D.; Khan, M. A. "Unusual Topologies in Supramolecular Coordination Polymers Comprised of Transition Metals and Aromatic Carboxylates" 225th *American Chemical Society National Meeting*, March 2003, New Orleans, LA.

***Houser, R. P.** "Design and Synthesis of Copper Complexes that Model Active Sites of the Denitrifying Enzymes Nitrite Reductase and Nitrous Oxide Reductase" 58th *American Chemical Society Southwest Regional Meeting*, November 2002, Austin, TX.

*Cheng, D.; **Houser, R. P.** "Copper(II), Zinc(II) and Cobalt(II) Coordination Polymers with Bridging 2,4,6-pyridinetri-carboxylate" 58th *American Chemical Society Southwest Regional Meeting*, November 2002, Austin, TX.

SECTION III. TEACHING**A. COURSES TAUGHT**

<i>Fall 1999</i>	Chem 4333	Inorganic Chemistry*	Class size: 19
<i>Fall 2000</i>	Chem 4333	Inorganic Chemistry	Class size: 24
<i>Spring 2001</i>	Chem 1315	General Chemistry*	Class size: 240
<i>Fall 2001</i>	Chem 5333	Physical Inorganic Chemistry*	Class size: 6
<i>Spring 2002</i>	Chem 6863	Bioinorganic Chemistry*	Class size: 9
<i>Fall 2002</i>	Chem 5333	Physical Inorganic Chemistry	Class size: 11
	Chem 6850	Seminar – Inorganic Chemistry	Class size: 9
<i>Spring 2003</i>	Chem 1315	General Chemistry	Class size: 125
<i>Spring 2004</i>	Chem 4923	Chemistry Capstone: Chemistry of the Environment*	Class size: 28

*New prep

B. MENTORING (CURRENT GROUP MEMBERS)

1 postdoctoral, 4 graduate students, 3 undergraduates

C. MENTORING (PAST GROUP MEMBERS):

1 postdoctoral, 1 graduate students, 9 undergraduates

D. GRADUATE STUDENT ADVISORY COMMITTEES

Doctoral Committees: 21

Master's Committees: 5

E. PARTICIPATION IN ACTIVITIES RELATED TO PEDAGOGICAL DEVELOPMENT

New Faculty Professional Development Seminar (Fall 1999)

Faculty Lunch Discussion Group: Making Large Classes Interesting and Exciting (Spring 2001)

SECTION IV. SERVICE

A. DEPARTMENTAL

Recruiting Committee (2004 – present)

Carnegie Initiative on the Doctorate (CID) Leadership Team (2004 – present)

Chair, Small Molecule X-ray Crystallography User Group (2004 – present)

Student Organization Advisor (PLU) (2001 – present)

Seminar Committee (Fall 2000 – present)

OU Chemistry/Biochemistry Day Introductions and Departmental Overview (2002, 2003)

General Chemistry Text Committee (Summer 2000 – 2002)

Secretary at faculty meetings (Fall 1999 – Fall 2000)

Host for Karcher/Barton Seminar Speakers: 2004, 2003, 2002, 2001, 2000

Host for Inorganic Seminar Speakers: 2004 (2), 2000 (2)

B. COLLEGE OF ARTS AND SCIENCES

Faculty Marshal for CAS Convocation: 2003, 2002, 2000

C. UNIVERSITY

English Assessment Program Panelist (Spring 2002 – present)

Adopt-a-Faculty Program (Fall 2003 – present)

Henderson Scholars Program Mentor (Fall 2002 – present)

Faculty-In-Residence Program (Fall 2002 – Summer 2003)

D. PROFESSIONAL

Leadership Roles at Meetings

Session Chair (Bioinorganic Chemistry), 227th American Chemical Society National Meeting, Anaheim, CA, March 2004.

Session Chair, 59th Southwest Regional Meeting of the American Chemical Society, Oklahoma City, OK, October 2003.

Peer Review for Journals and Granting Agencies (number of reviews)

Australian Journal of Chemistry (1)

Chemical Reviews (1)

European Journal of Inorganic Chemistry (2)

Inorganic Chemistry (9)

Inorganic Chemistry Communications (3)

Journal of Biological Inorganic Chemistry (2)

Journal of Molecular Structure (1)

Journal of the American Chemical Society (5)

Langmuir (1)

Proceedings of the Organic Reactions Catalysis Society (1)

Supramolecular Chemistry (1)

National Science Foundation (research proposal) (3)

Petroleum Research Fund (research proposal) (2)