BIOGRAPHICAL SKETCH

Provide the following information for the key personnel

NAME	POSITION TITLE
Raptis, Raphael G.	Professor of Inorganic Chemistry

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Aristotle Univ. of Thessaloniki, Greece	B.S.	1981	Chemistry
Univ. of Texas at El Paso, El Paso, TX	M.S.	1984	Chemistry
Texas A&M Univ., College Station, TX	Ph.D.	1988	Inorganic Chemistry
Texas A&M Univ., College Station, TX	Postdoc	1989	
Australian National Univ., Canberra, Australia	Postdoc	1990-1	

A. Positions and Honors.

Positions and Employment

1/82-8/84 Teaching and Research Assistant, Chem. Dept., Univ. of Texas at El Paso, El Paso, TX.
8/84-12/84 Research Assistant, Chem. Oceanography Dept., Texas A&M Univ., College Station, TX.
1/85-8/88 Teaching and Research Assistant, Chem. Dept., Texas A&M Univ., College Station, TX.
1/89-8/89 Postdoctoral Fellow, Chem. Dept., Texas A&M Univ., College Station, TX.
9/90-12/91 Postdoctoral Fellow, Research School of Chem., Australian Natl. Univ., Canberra.
1/91-1/92 Coordinator, Inorganic Seminar Progr., RSC, Australian Natl. Univ., Canberra, Australia.
1/92-3/93 Research Fellow, RSC, Australian National. Univ., Canberra, Australia.
4/93-10/97 Assistant Prof., University of Crete, Heraklion, Greece.
11/96-4/97 Visiting Fellow, RSC, Australian Natl. Univ., Canberra, Australia.
8/97-5/98 Visiting Lecturer, Chem. Dept., Univ. of Texas at El Paso, El Paso, TX.
8/98-6/99 Assistant Prof., Chem. Dept., Univ. of Puerto Rico - Río Piedras, San Juan, PR.
7/99-6/04 Associate Prof., Chem. Dept., Univ. of Puerto Rico - Río Piedras, San Juan, PR.
7/04 – 8/13 Professor, Chem. Dept., Univ. of Puerto Rico - Rio Piedras, San Juan, PR.
8/13 – present Professor, Dept. of Chemistry and Biochemistry, Florida International Univ., Miami, FL.

Other Experience and Professional Memberships

11/96-4/97 Visiting Fellow, Research School of Chemistry, Australian National Univ.
8/98-8/13 Director, single crystal X-ray facility, Chemistry Dept., Univ. of Puerto Rico.
1986-present American Chemical Society.
2009 Chair, Puerto Rico section of the American Chemical Society.
2000-present American Association for the Advancement of Science.
2005-Present Society for Biological Inorganic Chemistry.

B. Selected publications.

Most relevant peer-reviewed publications (last 5 years; Total, 109; h-index, 28):

1. Das S, Chakraborty I, Skachkov D, Ahmadi M, Ishikawa Y, Baran P, Raptis RG. Water-Soluble Derivatives of Octanuclear Iron-Oxo-Pyrazolato Complexes; An Experimental and Computational Study. Eur. J. Inorg. Chem. 3704-3711, 2012.
2. Zueva EM, Sameera WMC, Piñero DM, Chakraborty I, Devlin E, Baran P, Lebruskova K, Sanakis Y, McGrady JE, Raptis RG. Experimental and theoretical Mössbauer study of an extended family of $[Fe_8(\mu_4\text{-}O)_4(\mu\text{-}4\text{-}R\text{-}px)_{12}X_4]$ clusters. Inorg. Chem. 50: 1021-1029, 2011.
3. Klostergaard J, Parga K, Raptis RG. Current and Future Applications of Magnetic Resonance Imaging (MRI) to Breast and Ovarian Cancer Patient Management. P. R. Health Sci. J. 29: 223-231, 2010.

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4. Baran P, Boča R, Chakraborty I, Giapintzakis J, Herchel R, Huang Q, McGrady JE, Raptis RG, Sanakis Y, Simopoulos A. Synthesis, Characterization and Study of Octanuclear Iron-Oxo Clusters Containing a Redox-Active Fe_4O_4-Cubane Core. Inorg. Chem. 47: 645-655, 2008.

Other relevant publications:

1. Raphael G. Raptis and Peter Baran, "Substituted Octanuclear Pyrazolato Clusters with Electron Transfer and MRI Contrast Agent Properties", *US 7,052,677 B1* (May 30, **2006**).
2. Raphael G. Raptis and Ricardo González Méndez, "Iron-Based Contrast Agent", *US 7,807,137* (October 5, **2010**).

Other recent publications (last 3 years):

1. Zueva EM, Herchel R, Borshch SA, Govor EV, Sameera WMC, McDonald R, Singleton J, Travnicek Z, Sanakis Y, McGrady JE, Raptis RG. Double exchange in a mixed-valent octanuclear iron cluster, $[Fe_8(\mu_4\text{-}O)_4(\mu\text{-}4\text{-}Cl\text{-}pz)_{12}Cl_4]^-$. Dalton Trans. 11269-111276, 2014.
2. Yang G, Santana JA, Rivera-Ramos, ME, Saavedra-Arias JJ, Ishikawa Y, Hernández-Maldonado AJ, Raptis RG. A Combined Experimental and Theoretical Study of Gas Sorption on Nanoporous Silver Triazolato Metal-Organic Frameworks. Micropor. Mesopor. Mat. 183: 62-68, 2014.
4. Mathivathanan L, Torres-King J, Primera-Pedrozo JN, García-Ricard OJ, Hernández-Maldonado AJ, Sanatana JA, Raptis RG. Selective CO_2 adsorption on metal-organic frameworks based on trinuclear Cu_3-pyrazolato complexes: An experimental and computational study", *Cryst. Growth Des*. *13*: 2628-2635, 2013.
5. Yang G, Baran P, Martínez AR, Raptis RG. Substitution Effects on the Supramolecular Aggregation of Ag^{I}-Pyrazolato Trimers. Cryst Growth Des. 13: 264-269, 2013.
6. Sameera WMC, Piñero DM, Herchel R, Sanakis Y, McGrady JE, Raptis RG, Zueva EM. A Combined Experimental and Computational Study of the Magnetic Superexchange within a Triangular $Fe^{III}_3(\mu_3\text{-}O)$-Pyrazolato Complex. Eur. J. Inorg. Chem. 3500-3506, 2012.

C. Research Support

Ongoing Research Support

- National Science Foundation, CHE-1213683 (Raptis, PI)
  9/9/13 – 8/31/16
  "Copper-Based Water-Oxidation Electrocatalysts; Design, Synthesis and Characterization"
  The major goal of this project is to modify polynuclear copper clusters and test their electrocatalytic activity towards water oxidation.
- National Aeronauticas and Space Administration, NNX13AD38A (Hernández, PI; 2 Co-PIs)
  12/26/12 - 12/25/15
  "Carbon Dioxide Storage and Sustained Delivery y Porous Pillar-Layered Structure Coordination Polymers and Metal Organic Frameworks"
  The major goal of this project is to synthesize CO2-selective porous sorbents containing redox-active structural building units.
- American Chemical Society-Petroleum Research Fund, # 51962-ND3 (Raptis, PI)
  1/1/2012 – 08/31/2014
  "Synthesis and Characterization of Dyads Capable of Achieving Photoexcited Two-Electron Charge-Separated States"
  The goal of this project is to use polynuclear iron-oxo clusters as multi-electron acceptors for solar energy conversion applications.

OVERLAP

There is no overlap between the three ongoing projects and the application under consideration here.

Completed Research Support

- National Science Foundation (CHE-0822600) (Raptis, PI)
  09/01/2008 – 8/31/2011
  "A Combined Experimental and Theoretical Study of Redox-Active Fe4O4 Cubanes".