

Youngstown
STATE UNIVERSITY
IN YOUNGSTOWN, OHIO

Department of Chemistry
College of Arts & Sciences



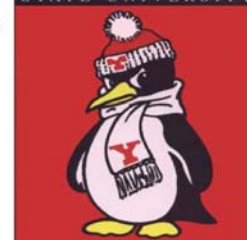
YOUNGSTOWN
STATE UNIVERSITY



STaRBURSTT-CDC



YOUNGSTOWN
STATE UNIVERSITY



Seminar Coordinator: [Dr. Allen D. Hunter](#)

Professor of Chemistry & Director of the [STaRBURSTT CyberInstrumentation Consortia](#) (at [YSU](#) & [Nationally](#)) *

* STaRBURSTT is one of the many innovative approaches we use to give exceptional hands on education to our undergraduate and MS students.

This Week's Seminar

3:15 on Friday December 2nd for our 9th Fall Seminar

Dr. [Cora Lind](#)



cora.lind@utoledo.edu - 419-530-1505

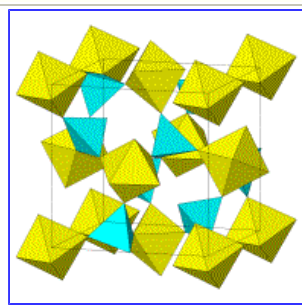


“Shrinking from the Heat: Negative Thermal Expansion Materials”

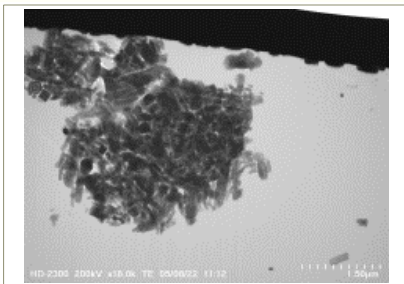
Negative thermal expansion (NTE) materials (i.e., those that *shrink* when they are heated) have received considerable scientific interest because of their potential for use as fillers in composites. Mixing of a positive thermal expansion material with a NTE filler should reduce the overall expansion coefficient of the composite while maintaining other desirable properties of the matrix material.

Dedicated research on NTE materials started only during the last decade. Much progress has been made in the synthesis and characterization of NTE compounds, but many show properties like irreversible phase transitions under pressure that could interfere with the processing of composites. In addition, a number of NTE oxides are metastable, thus requiring synthetic approaches that use kinetic control.

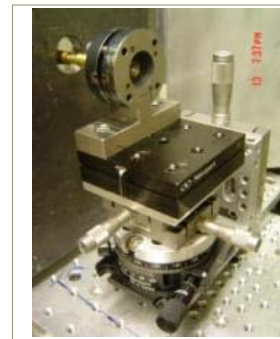
In this talk, a brief overview of important aspects relating to the field of NTE research will be given. We will then focus on synthetic approaches to metastable NTE materials. The materials are characterized by variable temperature diffraction experiments and *in-situ* high-pressure diffraction studies. Finally, some first results on the preparation of NTE/polymer composites will be discussed.



Crystal structure of the NTE material cubic
 ZrW_2O_8



TEM picture of a $ZrMo_2O_8$ / polyimide
composite.



High-pressure diffraction experiments in a
diamond anvil cell

YSU Chemistry MS Graduate Students in 2005-2006 Excellent Recruiting Targets!



**Abdul-Basit
Alhassan**



Adam Cox



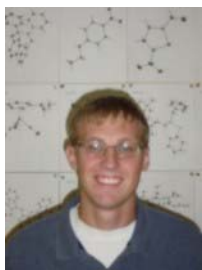
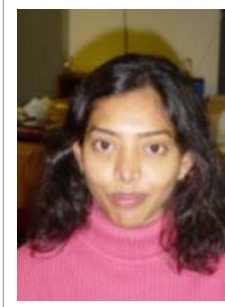
**Anitha
Muttavarapu**





**Bhargavi
Vemulapalli**



Danielle Jack





**Daryl Mains****Debbie Smith****Erin Treece****Jazerie Williams****Julia Sacui****Lemuel Carlisle****Manish Dhawan****Mike Strozewski****Monica Vicarel****Neelima
Dobbala****Rachel Kusnic****Ragini Kankanala****Ramnath
Kallamadi****Ryan Conway****Sara Duncan****Sowmya Pabba****Sridevi Ravulaparti****Susmita
Kapavarapu****Umakanth Potula****Uma Thatipally**

				
	Venkata Ramana Konda		Wickliffe Wepukhulu	
No Picture Yet See Matthias!	No Picture Yet See Matthias!	No Picture Yet See Matthias!	No Picture Yet See Matthias!	No Picture Yet See Matthias!
Carried Kolly	Kevin White	Rob Wardle	Traci Tiggs	Vanessa Smiley

2005-6 Seminar Schedule

Speaker Notices & Announcements	Speaker (linked to their YSU departmental and individual home page(s)), YSU Chemistry Department Presentation Title (Presentation Materials)
September 23rd	Seminar 1a: Peter Norris (Peter's Home Page) "Synthesis of Aminosugars," Seminar 1b: Mike Serra "Metal Catalyzed Oxidation of Proteins," Seminar 1c: Larry Curtin (Larry's Home Page) "Ferrocene Containing Polymers and C60 Adducts"
September 30th	Seminar 2a: Howard Mettee "There's a Model in Your Future," Seminar 2b: Sherri Lovelace Cameron (Sherri's Home Page) "Organometallic Polymers," Seminar 2c: Jeff Smiley "A Confused Enzyme: A Decarboxylase That Thinks its a Hydrolase"
October 7th	Seminar 3a: Tom Kim (Tom Kim's Home Page) "Proteomics" Seminar 3b: Jim Mike "Adventures in Separation Science"
October 14th	Seminar 4a: Tim Wagner (Tim's Home Page) "Inorganic Nitride Fluorides," Seminar 4b: John Jackson (John's Home Page) "Synthesis & Reactions of Bis(2,2,2-trifluoroethyl)phosphinoalkynes," Seminar 4c: Daryl Mincey (Daryl's Home Page) "Forensic Analytical Chemistry"
October 21st	Seminar 5a: Allen Hunter (Allen's Home Page) "Remote Instrumentation and the STaRBURSTT CyberInstrumentation Consortium" {Presentation Materials: PowerPoint.ppt , Adobe.pdf } Seminar 5b: Brian Leskiw "A "Physical" View of Mass Spectrometry"

YSU Sabbatical & FIL Talks 2005-6	Peter Norris – “ <i>Synthesis of Amino Sugars</i> ” Allen Hunter – “ <i>Adventures with Organometallic NanoMaterials</i> ” Mike Serra - “ <i>The Use of Mass Spectrometry to Determine Sites of Oxidation</i> ”
6981 Seminar I Spring 2006	Ryan Conway Glen Cox Daryl Mains Erin Treece
6982 Seminar II Fall 2005	Neilima Dobbala - “????????”
6982 Seminar II Spring 2006	Vanessa Smiley - “ <i>Investigation into Two Mechanisms of Unusual Decarboxylases: α-Amino-β-Carboxymuconate e-Semiaidehyde Decarboxylase and Orotidine 5'-Monophosphate Decarboxylase</i> ” Debbie Smith
3790 Undergrad. Seminar Fall 2005	Lew Spirtos - “ <i>Anabolic Steroids</i> ” - November 30th, 2005 {Presentation Materials: PowerPoint.ppt , Adobe.pdf } William (Bill) Karnofel - “ <i>Synthesis of Oxides and Pseudo-Oxides</i> ” - November 30th, 2005 {Presentation Materials: PowerPoint.ppt , Adobe.pdf }
3790 Undergrad. Seminar Spring 2006	Khoa Dao

Speaker dates (with speaker Notices & Abstracts as linked .pdf files)	Speaker (linked to their home page), Home Institution & Department (linked to its home page) “ Presentation Title ” { Presentation Materials }
October 28th , 2005	Rob Cicchillo, (YSU Alumni & graduating PhD student with S. J. Booker) Pennsylvania State University Department of Biochemistry and Molecular Biology . “ <i>Biochemical, Biophysical, and Mechanistic Investigations of Lipoyl Synthase from Escherichia coli: A Member of the “Radical SAM” Family of Enzymes</i> ” {Presentation Materials: Adobe.pdf }
November 4th , 2005 	Ron Woodard , University of Michigan - Ann Arbor Department of Medicinal Chemistry “ <i>Mining New Microbial Pathways: Identification and Target Validation</i> ”
November 18th , 2005 	Chris Hadad , Ohio State University Department of Chemistry “ <i>Reactive Oxygen Species in Chemistry: Experiment and Theory</i> ” {Presentation Materials: Adobe.pdf }
December 2nd , 2005 	Cora Lind , University of Toledo Department of Chemistry “ <i>Shrinking from the Heat: Negative Thermal Expansion Materials</i> ”
December 9th , 2005 	Arthur Suits , Wayne State University Department of Chemistry “ <i>Lost in Configuration Space: Probing Novel Reaction Mechanisms with High Resolution Imaging</i> ”

January 20 th , 2006	Joe Grabowski , University of Pittsburgh Department of Chemistry "Quantification of Trace Organic in Air and Breath by Chemical Reaction Mass Spectrometry" & Results of National REU Outcomes Survey (for faculty)
January 27 th , 2006	Danith Ly , Carnegie Mellon University Department of Chemistry "New Research Opportunities at the Chemistry-Biology Interface"
February 3 rd , 2006	Apryll Stalcup , University Cincinnati Department of Chemistry "Ionic Liquids in Separations"
February 10 th , 2006	Tony Berdis , Case Western Reserve University Department of Pharmacology "Non-Natural Nucleotides as Chemotherapeutic Agents"
February 17 th , 2006	Jared Anderson , University of Toledo Department of Chemistry "Room Temperature Ionic Liquids: Applications in Analytical Chemistry"
February 24 th , 2006	James Kiddle , Western Michigan University Department of Chemistry "Chiral Multipurpose Organophosphorus Compounds for Asymmetric Synthesis"
March 3 rd , 2006	Peter Rinaldi , University of Akron Department of Chemistry "Applications of 3D-NMR to the Study of Non-Biological Macromolecules"
March 10 th , 2006	Irene Lee , Case Western Reserve University Department of Chemistry "Development of anti-bacterial agent through mechanistic enzymology of Lon Protease"
March 24 th , 2006	Mike Freitas , Ohio State University Department of Chemistry "Identification of Histone Post-Translational Modifications"
March 31 st , 2006	Tim Mueser , University of Toledo Department of Chemistry "X-Ray Crystallographic Studies of DNA Replication"
April 7 th , 2006	Laura Voss (A member of Heather Allen's Research Group), Ohio State University Department of Chemistry "Surfaces impacting climate change: The role of fatty acid monolayers in tropospheric chemistry"
April 14 th , 2006	Mike Sponsler , Syracuse University Department of Chemistry "Stoichiometric Olefin Metathesis as a Connection Method for Molecular Electronics"
April 21 st , 2006	Christine Moravec , Cleveland Clinic Department of Molecular Cardiology Sponsored by the YSU American Chemical Society Student Affiliates Chapter "Reversing Human Heart Failure"
April 28 th , 2006	Pat Woodward , Ohio State University Department of Chemistry "The NSF – Ohio REEL Project"
May 5 th , 2006	Megan Spence , University of Pittsburgh Department of Chemistry "Structure and Dynamics of Peripheral Membrane Proteins and their Lipid Membrane Environment Observed with Solid-State NMR"

2006 (Expected Date)	Speaker (linked to their home page), Home Institution & Department (linked to its home page) "Tentative Presentation Title"
September 29 th , 2006	Dennis Curran , University of Pittsburgh Department of Chemistry "Fluorous Phase Chemistry"
Fall 2006	Anna Gudmundsdottir , University of Cincinnati Department of Chemistry "Triplet Sensitized Photolysis of Alkyl Azides in Solution and in the Solid State"
Fall 2006	Bruce Armitage , Carnegie Mellon University Department of Biomedical Engineering "Bio-Inspired Organic Chemistry: Application in the Life and Materials Sciences"
Fall 2006	Audrey McGowin , Wright State University Department of Chemistry "Water as a "Tunable" Solvent"

Note #1: The Seminar Abstracts are provided for information purposes and the presentations are provided for use in our undergraduate and graduate seminar classes. No release of copyright or formal publication by their authors is implied. For confidentiality reasons, some of the text, graphics, and/or slides in the original presentation may have been redacted for confidentiality, copy write, or other reasons.

Note #2: We at YSU wish to thank our speakers for taking the time to introduce our students to their exciting research programs and the graduate programs in their departments. We would especially like to

thank those faculty who were kind enough to provide copies of their seminars for use as source materials
in our undergraduate and graduate seminar courses

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YSU Chemistry Department Seminar Program.

Seminar Coordinator: Allen Hunter's Email Address: adhunter@ysu.edu
Seminar Coordinator: Allen Hunter's Home Page: <http://www.as.ysu.edu/~adhunter/index.html>

[Directions to YSU](#) & Maps ([YSU Campus](#) & [YSU Region](#))

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