

# VITA

# CYRILL B. SLEZAK

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461 S 2100 W  
Orem, UT  
Phone: (517) 398-4324  
Email: CSlezak@uvu.edu  
<http://cyrill.slezak.co.at/>

Department of Physics  
Utah Valley University  
800 West University Parkway  
Orem, UT 84058  
Phone: (801)863-6205

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## EDUCATION

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<b>University of Cincinnati</b> Ph.D. - Physics “Methods for Correlated Electron Systems” Advisor: Prof. Mark Jarrell	Cincinnati, Ohio 01/02 - 08/06
<b>University of Cincinnati</b> Master of Science, 2001 – Physics	Cincinnati, Ohio 09/98 - 12/01
<b>Adams State College</b> Bachelor of Arts – 1998, Cum Laude Major: Physics and Music Performance Minor: Mathematics	Alamosa, Colorado 08/94 – 05/98

## PROFESSIONAL EXPERIENCE

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<b>Assistant Professor,</b> Department of Physics Utah Valley University	08/13 – present Orem, Utah
<b>Adjunct Faculty,</b> Department of Physics Louisiana State University	05/09 – present Baton Rouge, Louisiana
<b>Visiting Assistant Professor,</b> Department of Physics Whitman College	08/12 – 7/13 Walla Walla, Washington
<b>Assistant Professor,</b> Department of Physics Hillsdale College	08/06 – 8/12 Hillsdale, Michigan
<b>Visiting Assistant Professor,</b> Department of Physics University of Cincinnati	09/05 – 08/06 Cincinnati, Ohio

**Research Assistant,**  
Oak Ridge National Laboratories  
in conjunction with the University of Cincinnati  
under supervision of Dr. Thomas Maier

09/03 – 08/05  
Oak Ridge, Tennessee

**Instructor,**  
“Physical Science by Inquiry for Teachers”  
under Prof. Robert Endorf, University of Cincinnati

Summer 03, 06  
Cincinnati, Ohio

**Scientific Employee,**  
University of Augsburg

01/02 – 06/02  
Augsburg, Germany

**Teaching Assistant,**  
University of Cincinnati

09/98 – 12/01 and 08/02 – 06/03  
Cincinnati, Ohio

## COURSES TAUGHT

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### Graduate:

**Physics by Inquiry**  
*MNS program at Louisiana State University*

**Modeling**  
Co-Instructor, *MNS program at Louisiana State University*

**Solid State Physics**  
Lectures, Co-Instructor, *Louisiana State University*

**Science Education**  
Lectures, *Louisiana State University*

### Undergraduate:

**Condensed Matter Physics**  
Lectures, *Hillsdale College*

**Quantum Mechanics II**  
Lectures, *Hillsdale College*

**Classical Mechanics**  
Lectures, *Hillsdale College*

**Intermediate Bio-Medical Physics**  
Lectures, *Hillsdale College*

## **Introduction to Computational Physics**

Lectures, *Hillsdale College*

## **Modern Physics**

Lectures, *Hillsdale College*

Laboratories, *Hillsdale College*

## **Science Education**

Lectures, *Hillsdale College*

## **Physical Science by Inquiry for Inservice Teachers**

Program Director, Instructor, *Hillsdale College*

Assistant Instructor, *University of Cincinnati*

## **The Teaching of Secondary Physics**

Lectures, *Hillsdale College*

## **General Physics - Calculus Based**

Lectures, *Whitman College, Hillsdale College*

Recitations – Problem and Inquiry based, *Hillsdale College, University of Cincinnati*

Laboratories, *Whitman College, Hillsdale College, University of Cincinnati*

## **College Physics - Algebra Based**

Lectures, *Utah Valley University*

Recitations – Inquiry based, *University of Cincinnati*

Laboratories, *University of Cincinnati*

Laboratories, *Hillsdale College*

## **Physics of Sound and Music**

Lectures, *Hillsdale College*

## **Physical Science**

Lectures, *Hillsdale College*

## **COMPUTER SKILLS**

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**Programming Languages** – Fortran-77, Fortran-90, C, C++, PERL, CGI, Mathematica, LATEX, HTML, CSS

**Programming Libraries** - LAPACK, BLAS, MPI

**Platforms** – Windows, MAC, Unix and SUN workstations, IBM SP, Beowulf Linux cluster, Itanium 2 cluster

## LABORATORY SKILLS

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**Laboratory Interfaces** – Microcomputer-based laboratory interfaces from PASCO and Vernier with a large variety of probes and detectors.

**Interface/Analysis Software** – Data Logger & Logger Pro (Vernier) and DataStudio (PASCO).

**Advanced Solid State** - Siemens X-Ray Diffractometer D5000 and VEECO Nanoscope III Atomic Force/Scanning Tunneling Microscope

## PUBLICATIONS

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- 1.) C.Slezak, S. Kehrein, Th. Pruschke, M. Jarrell, *Semi-Analytical Solution of the Kondo Model in a Magnetic Field*, Phys. Rev. B 67, 184408 (2003).
- 2.) Th.A. Maier, M. Jarrell, A. Macridin, and C. Slezak, *Kinetic Energy Driven Pairing in the Cuprates*, Phys. Rev. Lett. 92, 027005 (2004).
- 3.) C. Slezak, A. Macridin, G. A. Sawatzky, M. Jarrell and T. A. Maier, *Spectral Properties of Holstein and Breathing Polarons*, Phys. Rev. B 73, 205122(2006).
- 4.) C. Slezak, M. Jarrell, Th. Maier and J. Deisz, *Multi-scale Extensions to Quantum Cluster Methods for Strongly Correlated Electron Systems*, J. Phys.: Condensed Matter 21, 435604 (2009).
- 5.) C. Slezak, K.M. Koenig, R.J. Endorf and G.A. Braun, *Investigating the Effectiveness of the Tutorials in Introductory Physics in Multiple Instructional Settings*, Phys. Rev. ST Physics Ed. Research 7, 020116 (2011).

## INVITED SEMINARS

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*A Comprehensive Cognitive Approach to Science Teacher Training, January 2012, MSP Learning Network Conference, Washington D.C.*

*Science Education: Past, Present and Solutions, April 2010, Colloquium, Hillsdale College.*

*Challenges and Rewards of Implementing Physics Education Research-based Reform, May 2009, Special Colloquium, Louisiana State University.*

*Impressions of first year challenges and rewards - teaching at a small college, August 2007, Group Meeting, University of Cincinnati.*

*Semi-Analytical Solution of the Kondo Model in a Magnetic Field*, June 2002, Lehrstuhlseminar, Universität Augsburg, Germany.

## STUDENT ADVISING AND COMMITTEES

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### **Masters Thesis Advisor and Thesis Committee Chair**

John Underwood (M.N.S.) - *Do Learning Logs Have An Impact On The Conceptual Mastery Of Force And Motion?*

Jacqueline Barker (M.N.S.) - *The Effect of Instructional Methodologies on Student Achievement Modeling Instruction vs. Traditional Instruction*

Blake Orgeron (M.N.S.) - *Focus Question Effect on Dynamic Thinking in a Concept Map*

Michael Shawn Liner (M.N.S.) - *Spatial Ability and Achievement in High School Physics*

**Masters Thesis Committee Member - Rebecca Branton, Laurie Font, Amanda Vargo, Mary Feighery**

## SYNERGISTIC ACTIVITIES

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**Physical Science by Inquiry** - Program director of a residential three week professional development program for physics teachers grades K-12 in physics education at Hillsdale College.

**LONI Institute** – A collaboration of multi-disciplinary researchers among sites in Louisiana. I contribute a distance learning course offered on a regular basis in Condensed Matter Physics.

**PIRE Collaboration:** Graduate Education and Research in Petascale Many Body Methods for Complex Correlated Systems – I provide a course in Solid State to this international partnership of research Universities.

**Louisiana Math and Science Teacher Institute** - Course design and instruction for the physics content and pedagogy components.

**Development of Curricular Materials** - Comprehensive set of course materials for an advanced undergraduate or introductory graduate course in solid state physics.

**Public Outreach** – Continually contribute to local science fairs, Science Olympiads, and science demonstrations.

**Learning Assistant Program** – Constituted a department-wide program aimed at involving advanced physics students in facilitating small-group interaction in first year introductory physics courses.

**Freelance Trombonist** – Active performer with UVU's Concert Band, Hillsdale College's Symphony Orchestra, Big Band, and Brass Quintet.

## **PROFESSIONAL SOCIETIES/ADVISORY GROUPS**

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American Physical Society (APS)

American Association of Physics Teachers (AAPT)

Physics Teacher Education Coalition (PTEC)

Hillsdale-Lenawee-Monroe Math and Science Center Advisory Board

Sigma Pi Sigma (Physics Honor Society)

## **UNIVERSITY SERVICES**

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Academic Computing Advisory Committee, Chair

Faculty Senate

Academic Status Committee

Physics Major and General Advisor

Departmental Web and HPC server Administrator