Peteris Livins

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Summary of Qualifications:

- Experience with computer programming (C/C++, Java, Unix/linux, Fortran), electronics and laboratory instrumentation.
- Knowledge of mathematical methods and experience in data analysis.
- Experience in public speaking as a university teacher and researcher.
- Experience in technical writing and publications.
- Independence in quickly learning new technical skills.
- WA state teacher certification, endorsed in: Physics, Math, Chemistry, General Science

Education:

Ph.D., Experimental Condensed Matter Physics, University of Virginia

B.S., Physics, SUNY at Stony Brook

Previous Employment:

2002-2004,2006 **Instructor in Physics and Math**; Centralia College, Centralia, WA

- Prepared and delivered instruction for the introductory college physics sequence as well as the liberal arts physics survey.
- Maintained and upgraded physics laboratory curriculum and equipment.
- Prepared and delivered instruction in linear mathematics, differential equations, multivariate calculus, calculus, precalculus, and a liberal arts math survey course.

2000-01 **Consultant and Researcher**; Profile Technologies, Inc. Ferndale, WA

- Advised and performed investigations on methods for the detection of corrosion on pipeline through the use of guided electromagnetic waves.

1992-98 **Lecturer in Physics**; Western Washington University, Bellingham, WA

- Prepared and delivered lectures for roughly half the WWU physics curriculum.
- Directed and wrote student labs.
- Pursued and published theoretical research on dynamic exchange in the X-ray spectra of semiconductors.

1991-92 **Research Physicist**; University of Washington, Seattle, WA

- Researched methods to experimentally access the XAFS(X-ray Absorption Fine Structure) background for the alkali halides.

1988-91 **Post-doctoral Research Associate**; Univ. of Washington, Seattle, WA

- Developed a microsecond time-resolved XAFS method.
- Developed X-ray focusing methods.
- Experimentally studied the melting transition of lead using XAFS.

Computer Experience:

Besides having used C/C++ since 1997, my computing expertise includes over two decades of Fortran programming for data analysis, mathematical modeling and some instrumentation control. I have experience with the assembly language for the DEC PDP-11 and for the Motorola 68HC11 microcontroller. I also have limited programming experience with Java, HTML, X-Windows, Labview, Visual C++, and SQL. I have used the following operating systems: DEC RSX-11 and VMS, Unix, DOS, MS-Windows and linux. I work with the word processing programs, TEX and MS Word. I personally operate several desktop computers with which I have some networking experience (DNS, NFS, Sendmail, Samba), and on which I run various combinations of Windows 98, XP and linux.

Teaching Experience:

I have taught a broad range of lower and upper division physics courses, as well as most lower division math courses, astronomy too. Naturally, many physics courses also involve laboratory instruction, in which I have had continuous teaching assignments, developed curriculum, and upgraded equipment. This college teaching experience encompasses nine years, in which I have prepared materials for 22 different courses in the sciences or mathematics. A list of the different types of courses follows:

Introductory Astronomy	General Relativity
Introductory Survey of Physics	Mathematical Methods of Physics
Introductory Physics I without calculus	
Introductory Physics II without calculus	
Introductory Physics I with calculus	Liberal Arts Math Survey
Introductory Physics II with calculus	Trigonometry
Introductory Physics III with calculus	Precalculus
Thermal Physics	Calculus I
Statistical Physics	Calculus II
Electromagnetic Theory II	Multivariate calculus
Solid state Physics	Linear Mathematics
Specialized study in theoretical mechanics	Differential Equations

Electronics Experience:

Naturally, my experience with experimental physics has involved the acquaintance with basic electronics, both analog and digital. This experience includes the design of simple circuits for instrumentation control, design and construction of PC boards, the assembly of the electronic hardware. In addition, my solid state physics background provides familiarization with basic device physics.

Experimental Hardware Experience:

My experimental work in physics has provided familiarity with vacuum and ultra-high vacuum systems, laser operation, optical component positioning and alignment, as well as with several x-ray detection techniques. Also, I have had nine occasions to use synchrotron facilities at the National Synchrotron Light Source at Brookhaven National Labs, the Cornell High Energy Synchrotron Source at Cornell University and at the Stanford Linear Accelerator totaling approximately 16 full weeks of beam time.

Shop Experience:

I have had instruction in machining skills through two university machine shops where I have experience using equipment such as a lathe and the vertical mill, with which I have machined metals such as steel, aluminum and brass for simple elements in experimental set-ups. Also, I have designed and laid out drawings for professional machinists for more involved machining work. Thus, I have some familiarity with the practical end in creating a machined product.

Languages:

Being born in the United States of immigrant parents, both English and Latvian are my native languages, which I read, write and speak fluently. Furthermore, in addition to my public school secondary education, I am also a graduate from a weekly meeting foreign language high school, the Long Island Latvian Lutheran Secondary School. I have also studied French in high school for three years, as well as one year of university study.

Primary References:

Laura Brener	Gale Burnett	James Stewart
Dean of Instruction	Profile Technologies	Physics/Astronomy
Centralia College	2257 Northgate Spur	Western Washington U.
Centralia, WA 98531	Ferndale, WA 98248	Bellingham, WA 98225
(360) 736-9391 Ext 258	(360) 366-7473	(360) 650-3840
lbrener@centralia.ctc.edu	(360) 354-6974	jstewart@physics.wwu.edu

Secondary References:

John Martens	S. E. Schnatterly	E. A. Stern
VP of Instruction	Dept. of Physics	Dept. of Physics
Centralia College	University of Virginia	University of Washington
Centralia, WA 98531	Charlottesville, VA 22901	Seattle, WA 98195
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Publications:

Shake-up in Soft X-ray Emission; I The Low Energy Tail
Physical Review B, **37** 6731 (1988)

Shake-up in Soft X-ray Emission; II Plasmon Satellites and XPS
Physical Review B, **37** 6742 (1988)

Inelastic Electron Scattering in Amorphous Silicon Nitride and Aluminum Oxide with Multiple Scattering Corrections
Physical Review B, **38** 5511 (1988)

Lack of Mirror Symmetry between X-ray Absorption and Emission in Simple Metals
Physical Review B, **39** 5480 (1989)

Vertical X-ray Focussing Applied to a Time Resolved XAFS Method
Nuclear Instruments and Methods, **50** 250 (1990)

Thermal Vibrations and Melting From a Local Perspective
Physical Review B, **43** 8850 (1991)

Microsecond Resolved XAFS of the triplet state of $Pt_2(P_2O_5H_2)_4^{4-}$
Nature **362** 40 (1993)

Near-edge XAFS of Pb: A Comparison of Theory and Experiment
Physical Review B **47** 14126 (1993)

The Structure of Photoexcited Platinum Pop Measured with
Microsecond Resolved XAFS
Jpn. J. Appl. Phys. **32** suppl. 32-2 195 (1993)

Study of the Near Edge XAFS Background Determination in the Alkali Halides
Jpn. J. Appl. Phys. **32** suppl. 32-2 116 (1993)

Core X-ray Spectra in Semiconductors and the MND Model
Physical Review B **58** 10484 (1998)

Awards:

Runner-up for the Allan Talbot Gwathmey Memorial Award for outstanding dissertation in physics or engineering physics at the University of Virginia, 1989.

ETS (Educational Testing Service) Excellence Recognition for scores in *each* of the following General Knowledge Content Praxis (teacher preparation) exams: Mathematics, Physics, Chemistry, General Science.