Charles A. Hagedorn

101 CENPA/NPL Building
University of Washington
Seattle, WA 98195
cah49@uw.edu
URL: http://students.washington.edu/cah49/

1835 NE 58th Street
Seattle, WA 98105

(206)-940-6931

Education:
University of Washington, Seattle WA, PhD. complete June 2015, conferred August 2015. M.S. Physics, June 2006.

Cornell University, Ithaca NY, B.A. Physics and Mathematics, May 2004

Experience:
Research Assistant 8/2004-Present
University of Washington, CENPA/Eöt-Wash Gravity Group - Dr. Jens Gundlach, Advisor
- Thesis: 'A sub-millimeter test of gravity' (checking Newton at distances below 100 microns)
- Built next-generation autocollimators (sub-nanoradian in 1 s, dynamic range 10^7), wireless micropower sensor net.
- Mentored four undergraduate students to become contributing members of our research group.
- First measurement of the distance-dependence of proximity-enhanced gas damping.
- Designed, constructed, implemented, and operated a modern torsion balance. Sensitivity $< 10^{-14}$ N-m/$\sqrt{\text{Hz}}$.
- Developed, constructed, and characterized high Q ($> 10^5$)quartz torsion fibers.
- 8 published papers.

Teaching Assistant 8/2004-6/2005
University of Washington, Physics Department
- Instructed calculus and algebra-based labs, tutorials, study center. Fun!

Research Assistant 6/2001-7/2004
Cornell University/LASSP - Dr. Eberhard Bodenschatz, Advisor
- Built and maintained camera/framegrabber software to image chaotic systems
- Designed and built mechanical system for micron-precision laser calibration of a turbulent flow experiment
- Developed and implemented process for thick SU-8 structures on thick silicon substrates

Research Experience for Undergraduates 6/2002-8/2002
University of Colorado, Boulder CO - Dr. Charles Rogers, Advisor
- Assisted with development of mechanical "tweezers" for connection to molecular circuitry.
- Lithography: UV contact, e^--beam. SEM

Whitewater Kayaking Instructor/Teaching Assistant 8/2001-5/2004
Cornell University, Ithaca NY - Theo Theobald, Supervisor
- Facilitated student growth/exploration through whitewater paddling

Patent:
- Interferometric quasi-autocollimator. Turner, Gundlach, Hagedorn, Schlamminger. US Patent Application 20120242999.

Honors:
- Invited talk, APS April Meeting
- 2015 Best graduate-student talk, Pacific Coast Gravity Meeting
- 2011 Outstanding Referee, Review of Scientific Instruments
- Hartman Prize, Cornell University - Most Outstanding Undergraduate Experimental Physicist
- Dean's List, Cornell University

Skills:
- Inventive problem solving, Data analysis, Precision measurement, Mechanical design.
- *Hardware:* Metalwork (Lathe, Mill, Sheet metal, CNC), Rapid prototyping and development, Electronics/Design, Lapping, Photolithography, High Vacuum, Fiber Fizeau Interferometer, Arduino/XBee, ...
- *Software:* Linux, Windows, Data Acquisition, Simulation, MATLAB/Octave, Gnuplot, git, make, Solidworks,...
- *Life:* Ski mountaineering/Ski touring. Comfortable in avalanche terrain. Risk management.