

Justin A. Vasel

CURRENT

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PERMANENT

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<http://www.JustinVasel.com>

RESEARCH INTERESTS

Neutrino Astrophysics : supernova detection; high-energy sources
Heliophysics : space weather prediction; solar wind generation; sunspots
Public Policy : economic and societal effects of science policy in the United States

EDUCATION

Doctor of Philosophy, Physics August 2013 — Present
Indiana University
Master of Science, Physics September 2011 — August 2013
University of Minnesota Duluth
Bachelor of Science, Physics September 2007 — May 2011
University of Wisconsin—Eau Claire

SCHOLARSHIPS & AWARDS

AAPT Outstanding Teaching Assistant Award May 2013
American Association of Physics Teachers
Outstanding Graduate Teaching Assistant in Physics May 2013
University of Minnesota Duluth
Student Research Day Poster Competition — First Place May 2011
University of Wisconsin—Eau Claire
University Physics Competition 2010 — Silver Medal November 2010
<http://www.uphysicsc.com/> (International)
Physics Beyond the Classroom Fall 2010 — Spring 2011
University of Wisconsin—Eau Claire

CONFERENCES ATTENDED

American Physical Society April 2013 Meeting April 2013
Poster Presenter
221st American Astronomical Society Meeting January 2013
Poster Presenter
217th American Astronomical Society Meeting January 2011
Society of Physics Students Reporter
41st Nobel Conference — The Legacy of Einstein September 2005

RESEARCH
EXPERIENCE

The Helium and Lead Observatory (HALO) December 2011 — Present
SNOLAB — Lively, Ontario, Canada

- Developing existing Objective-C software to make automated selection cuts to data and to collect diagnostic data from detector hardware
- Designing and implementing experimental infrastructure: ie. local IP networks, hardware monitoring, user interfaces for remote management

Determining the Radial Location of the X-ray Emitting Zones of Spica January 2008 — July 2011
University of Wisconsin—Eau Claire, Department of Physics and Astronomy

- Combined existing photospheric models for hot stars with a unique H-alpha data set for the B-type star, Spica
- Wrote programs using Mathematica to process and visualize data from photospheric models of hot stars

Achieving a Circular Orbit Around Neptune Through Aerobraking November 2010 — May 2011
University of Wisconsin—Eau Claire, Department of Physics and Astronomy

- Utilized data from Voyager-2 to construct an atmospheric profile of Neptune
- Wrote programs in Mathematica to simulate the process of aerobraking

PROFESSIONAL
EXPERIENCE

Astrophysics Writer January 2012 — Present
<http://www.astrobites.com/>

Astrobites is a daily literature journal summarizing new astrophysical research posted to astro-ph. Astrobites is written by graduate students for undergraduates.

- Regular contributor and editor
- Twelve articles written to date (see *Publications*)

Graduate Teaching Assistant September 2011 — May 2013
University of Minnesota Duluth, Department of Physics

- Instructor and grader for three weekly lab sections
- Tutor undergraduate students on a weekly basis
- Assist course instructors in grading exams

Sales Associate September 2005 — August 2011
Shopko — Electronics Department, Eau Claire, WI

Physics Tutor September 2008 — December 2008
University of Wisconsin—Eau Claire, Department of Physics and Astronomy

Assistant Teacher July 2007
University of Wisconsin—Eau Claire, Summer Science Institute

- Helped teach students (grades 6–12) how to build a robot from a kit and program it using BASIC and assisted students in learning how to build a computer from scratch with a hands-on approach

Calculus Tutor October 2006 — December 2006
Winona State University, Mathematics Department

- Developed and implemented methods for teaching differential calculus to a blind student

PROFESSIONAL
AFFILIATIONS

American Astronomical Society (Junior Member)
Solar Physics Division

American Physical Society (Student Member)
Division of Astrophysics; Division of Particles and Fields

American Association of Physics Teachers (Student Member)

TECHNICAL
FAMILIARITY

Software	Languages	Operating Systems
ROOT	C++	Unix
Geant 4	Objective-C	Mac OS X
Mathematica	Python	Apple iOS
Adobe Suite	L ^A T _E X	Windows 98–7
Gnuplot	MATLAB	
Xcode 4	html 5, css 3	
	Javascript	

PUBLIC
LECTURES

Predicting the Next Galactic Supernova—How You Can Help (Future Event) <i>Chippewa Valley Astronomical Society: Northwoods Starfest 2013</i>	9 August 2013
Under the Hood: Preparing the Helium and Lead Observatory for Full Operation (Future Event) <i>University of Minnesota Duluth: Thesis Defense (M.S.)</i>	8 August 2013
Astronomically Patient—The Hunt for Galactic Supernovae <i>University of Wisconsin—Eau Claire: Physics Thursday Seminar Series</i>	4 April 2013
Stealthy Neutrinos and the Search for Exploding Stars <i>Eau Claire, WI: “Ask A Scientist” Seminar Series</i>	20 March 2013
Tornado Physics—A Terrifying Lesson in Fluid Dynamics <i>University of Minnesota Duluth</i>	1 March 2013
The Many Roles of Physicists in Particle Physics Experiments <i>University of Minnesota Duluth</i>	15 November 2012
Searching for Alien Civilizations <i>University of Minnesota Duluth: Astronomy Day</i>	28 April 2012
Space Weather Forecasting <i>University of Minnesota Duluth</i>	6 April 2012
Science in Seattle: The Latest Astronomy Findings from the 217th AAS Meeting <i>University of Wisconsin—Eau Claire: Physics Thursday Seminar Series</i>	11 February 2011
The Formation and Evolution of Supermassive Black Holes <i>University of Wisconsin—Eau Claire</i>	17 December 2010
Determining the Radial Location of the X-ray Emitting Zones of Spica <i>University of Wisconsin—Eau Claire: Physics Thursday Seminar Series</i>	19 November 2009

PUBLICATIONS

SCHOLARLY

**Under the Hood: Preparing the Helium and Lead
Observatory for Full Operation** (M.S. Thesis)

University of Minnesota Duluth

15 August 2013

GENERAL

The Great Disco Ball in the Sky

Astrobites.com

2 June 2013

Why Does Nature Form Exoplanets So Easily?

Astrobites.com

7 May 2013

How the Sequester Affects Space Science

Astrobites.com

6 March 2013

Introducing: The Over-massive Black Hole

Astrobites.com

5 December 2012

NASA Spacecraft Dawn Studies Asteroids Closely

Leader-Telegram: Eau Claire, WI

20 October 2012

An Unlikely Planetary Nursery

Astrobites.com

17 September 2012

The REAL Political Science

Astrobites.com

17 August 2012

A Star Screams While Being Devoured by Black Hole

Astrobites.com

10 August 2012

The Study of Climate on Alien Worlds

Astrobites.com

21 June 2012

The Supernova Early Warning System

Astrobites.com

24 May 2012

Stellar Archeology: A Cosmological View of Dwarf Galaxies

Astrobites.com

12 April 2012

Understanding GRBs Through High-Energy Neutrinos

Astrobites.com

3 March 2012

Caught in the Line of Fire: The Giants vs The Jets

Astrobites.com

4 February 2012

Star's Death Visible from Across the Universe

Leader-Telegram: Eau Claire, WI

18 June 2011

Reporting on AAS from the Front Lines

spsnational.org

February 2011

SERVICE &
OUTREACH

Participant <i>AAS Congressional Visits Day, Washington, D.C.</i>	March 13, 2013
Graduate Student Representative (Appointed) <i>Graduate Council, University of Minnesota Duluth</i>	December 2012 — Present
Committee Member (Appointed) <i>SCSE Technology Fees Committee, University of Minnesota Duluth</i>	September 2012 — May 2013
Judge <i>Northeastern Minnesota Regional Science Fair</i>	February 2013
Adopt-A-Physicist http://www.adoptaphysicist.org/	October 2012
President (Appointed) <i>Society of Physics Students, University of Minnesota Duluth</i>	December 2011 — February 2013
Judge <i>Lakeview Christian Academy Science Fair</i>	December 2011
Volunteer <i>Astronomy Day, University of Wisconsin—Eau Claire</i>	May 2011
President (Elected) <i>Society of Physics Students, University of Wisconsin—Eau Claire</i>	May 2010 — May 2011
Website Administrator (Elected) <i>Society of Physics Students, University of Wisconsin—Eau Claire</i>	May 2008 — May 2010
Freshman Senator (Elected) <i>Student Senate, Winona State University</i>	September 2006 — May 2007
<ul style="list-style-type: none"> • Cultural Diversity Committee, member • Election Committee, member 	