

Robert E. Stencel, Ph.D.

University of Denver – Dept. Physics & Astronomy & The Observatories

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Preamble: This summary of my teaching, research and service – while rostered as a member of the faculty of the University of Denver – comes at a time of unusually fast changes. Among these are the unfolding effects of a global pandemic, accelerating climate change and social dislocation. While human history is replete with comparable challenges, the current set of impacts on academic traditions and priorities will serve as critique in terms of whether we are serving our DU vision re: the public good.

Additional information can be obtained from DU's Activity Insight Comprehensive Data Reports plus Departmental records.

Appointments

2010 – present	Professor & <i>William Herschel Womble Professor of Astronomy,</i> & <i>Director, Chamberlin & Mt.Evans Observatories.</i>
1992 – 2010	Associate Professor & <i>William Herschel Womble Professor of Astronomy,</i> & <i>Director, Chamberlin & Mt.Evans Observatories.</i> University of Denver, Department of Physics & Astronomy.
1992 - 1993	Visiting Professor of Astrophysics, Department of Physics, University of Michigan, Ann Arbor.
1991 - 1993	Research Associate and Lecturer, Center for Astrophysics and Space Astronomy [CASA], University of Colorado at Boulder.
1985 – 1991	Chief Executive Officer, Research Associate and Lecturer, CASA and APAS, University of Colorado at Boulder.
1982 - 1985	Staff Scientist and Grants Program Officer, Astrophysics Division, NASA Headquarters, Washington, D.C.
1979 - 1982	Research Associate, Joint Institute for Laboratory Astrophysics University of Colorado at Boulder.
1977 - 1979	NAS NRC Research Associate, NASA-GSFC & JSC, Greenbelt, Maryland and Houston, Texas

Education

May 1977	Ph.D. Astronomy, University of Michigan, Ann Arbor. Dissertation: "H & K Wing Emission Lines in the Spectra of Late Type Stars" (Professors Richard Teske & Dr. Richard Canfield, thesis advisors)
June 1972	B.S. Physics, University of Wisconsin, Madison, June 1972

Research interests

Evolved stars and stellar winds; interacting binary stars; galactic ecology; telescopes & instrumentation: infrared spectroscopy; photometry; interferometry; nuclear astrophysics; light pollution solutions; archaeoastronomy; bioastronomy.

Academic record

PhD supervision:

2015 Richard L Pearson, Thermal Structure in the disk of epsilon Aurigae
2015 Kathleen M Geise, Polarimetry of the epsilon Aurigae binary star system
2013 Alexa Hart, Infrared imaging of evolved stellar sources
2012 Brian K Kloppenborg, Interferometric Imaging of epsilon Aurigae
2005 Colby Jurgenson, Astrophysical Infrared Spectropolarimetry
2002 [U.Wyoming] Robert Thompson, Mid-IR Stellar Interferometry
1999 [U.Wyoming] Jeff Sudol, Infrared High Angular Resolution Techniques
1997 Michelle Creech-Eakman, Silicate Feature Variation in LPV Stars

M.Sci. Thesis supervision: Melnick, McNabb, Fukuda, Edwards, Dahm, Reynolds

Undergrad senior thesis/honors thesis supervision: Bhatia; Matson; Stout; Carricuburu; Ostrowski; Bradley; Dahl; Matson, Leach

Memberships & other appointments

American Astronomical Society, *including Working Group on Professional Amateur Collaboration; Working Group on Light Pollution, Radio Interference and Space Debris; Solar Physics Division; and Historical Astronomy Division*

American Physical Society; Society of Physics Students mentor

International Astronomical Union – Div. IX, Space Sciences

American Association of Variable Star Observers

International Dark Sky Association - *Colorado section coordinator*

DU representative to the Universities Space Research Association (USRA)

DU representative, Rocky Mountain NASA Space Grant Consortium

& Frequent reviewer for Astrophysical Journal and related international publications, NSF astronomy, NASA spacecraft observing time allocation panels, including Spitzer, FUSE, IUE, HST, JWST plus Spitzer Fellowships

Organization of this Curriculum Vitae

A. Teaching

1. Teaching Record
2. The teaching profession
3. Student mentoring

B. Research

1. Research Record
2. Research objectives
3. Grants and publications

C. Service

1. Service to the Department, Division and University
2. Service to the Community
3. Service and Public Good

Some Publications of Special Note

Denver's Great Telescope – Guide to DU's historic Chamberlin Observatory

C.M. Stencel & R.E. Stencel, 2006: Global Interprint, 100 pages.

QB82.C62 D46 2006 & ISBN 0-9762017-2-0 & 2015 second edition.

Epsilon Aurigae – A Mysterious Star System

J.L. Hopkins & R.E. Stencel, 2008: Hopkins Phoenix Observatory, 256 pages.

QB823.H67 & ISBN-13: 978-0615240220

Denver's Pioneer Astronomer – Biography of Herbert Alsono Howe

H.J. Howe & R.E. Stencel, B36.H69 H694 2003 (DU Archives).

A. Teaching

The dual charge of the bequest of William Herschel Womble to the University of Denver was to 'build and operate a mountaintop observatory' (in memory of his mother, Cora), and to 'pursue educational research in astronomy and astrophysics'. These things have been done, and can continue to be done. The former is covered in the Research statements that follow. The latter are/were part and parcel of my work with students at the University of Denver and beyond.

A1. Teaching Record

Course and curriculum creation:

* Minor in Astrophysics and related courses.

During the 1990s, I proposed and taught a sequence of new courses to form the basis for the new Astrophysics Minor, offered by my Department since then. The Minor was based originally on 6 courses and an expectation of independent study/research in connection with a senior thesis:

PHYS 2051: Bio-Astronomy of Solar Systems [4 qtr-hr]

PHYS 2052: Stellar physics [4 qtr-hr]

PHYS 2053: Galaxies and Cosmology [4 qtr-hr]

PHYS 2061: Telescopes and Instrumentation [4 qtr-hr]

PHYS 2062: Astronomy with Digital Cameras [4 qtr-hr]

PHYS 2063: Observing Intensive (summer, Mt. Evans) [4 qtr-hr]

I have taught all of these courses on a two year rotation basis since inception.

These have been supplemented recently by the creation of two new 3000 level courses, PHYS 3251, Radiative Processes, and PHYS 3252 Astronomical Methods.

Also recently developed and taught twice, an upper division course called Nuclear Astrophysics, which became timely with the announcement of the detection of gravitational waves from merging black holes and indications of nucleosynthesis.

* Graduate Astrophysics courses

Similarly, during the 1990s, I proposed and taught a 3 quarter graduate sequence course called INTRODUCTION TO ASTROPHYSICS (PHYS 4251-5252-4253), and have offered the course as needed over the years, most recently in spring 2009. Newer faculty colleagues have offered these courses subsequently.

* First Year Seminars

2007 – Life in the Universe

2009 – Realities of Touring the Solar System

2011, 2013, 2014 – Nobel Physics Prizes

* Foundations courses

During the late 1990s, with the revision of “core” courses into Foundations sequences, I proposed and taught the NATS 1203-1204-1205 course sequence, then called THE THEORY OF EVERYTHING. In the early part of this decade, we decided to rename the course to its current title, 21ST CENTURY PHYSICS AND ASTRONOMY (NATS 1223-1224-1225) in order to provide other faculty some flexibility in terms of topics. I taught these sequences in 2004, 2005, 2013 (later known as PHYS 1011, 1012, 1013). The addition of Teaching faculty has resulted in these classes being offered by others.

* Courses for PHYSICS majors and others:

PHYS 1200 – Preparatory (first quarter seminar for prospective majors)

PHYS 2251 – Modern Physics I (winter 2009)

PHYS 2830 – Natural Optics, twice

PHYS 3540 – Workshop in Practical Astronomy, offered several times

PHYS 3700 – Special topics, astrophysics, nuclear astrophysics, several times

* CORE 2103, course in Archaeo-Astronomy

In collaboration with Sarah Nelson of the Anthropology Department, we offered said course under the previous Core education requirements of the late 1990s.

* Honors seminars HNRS 2400

During the tenure of Honors Program Director, Todd Breyfogle, I agreed to offer an Honors seminar on the topic of Archaeo-Astronomy (jointly with Sarah Nelson), and at least three separate quarters last decade on the topic of ‘Environmental and Societal Consequences of Artificial Light’.

*Supervision of elective astronomy classes, PHYS 1050-1070-1090

We have been fortunate to have as Lecturer Mr. David Trott who has taught our evening astronomy elective classes, held at DU’s historic Chamberlin Observatory, for decades. The course title for PHYS 1050, Descriptive Astronomy, is arguably one of the longest running courses offered at DU, traceable to Professor Howe’s class and book of the same title in the 1890s. Mr. Trott and I consult regularly on textbook selection and syllabus items. With Mr. Trott’s appointment at Arapahoe Community College and pending retirement, it will fall to DU faculty to sustain these popular offerings. This has happened with Ronald Mickle stepping in as instructor, until his retirement in 2021.

Syllabi available. Comprehensive course evaluations are available via Webcentral.

Classes taught [PHYS if not noted, excluding IS/IR, ENGR Senior Design Projects and summer PHYS2063]:

	PHYS		NATS		HNRS		Other
AY1993/94:	1050						
[1]							
AY1994/95:	4910		0600				
[2]							
AY1995/96:	2050	2060	1203	1204			
[4]							
AY1996/97:	4251	4252	1203				
[3]							
AY1997/98:	2062		1203	1204			
[3]							
AY1998/99:	2051	2052	2053	1204	1205		
[5]	4253						
AY1999/2000:		2061	2062	1050			
[6]	4251	4252	2051				
	PHYS		NATS		HNRS		Other
AY2000/01:	4253	4910*	2061				CORE2103
[4]	*PHYS 4910 = Radiative Processes						
AY2001/02:	Mini-sabbatical		fall qtr.				
[3]	2061	2062	3709				
AY2002/03:	2051	2061	2062	1224	2400		
[7]	2053	4251					
AY2003/04:	2051	2052	2053	1223	2400		
[9]	4251	4252	4253	1225			
AY2004/05:	2051	2061	2062	1223 (twice)	2400		
[7]	3711						
	PHYS		NATS		HNRS		Other
AY2005/06:	1200	2051	2052				
[5]	2053	4251					
AY2006/07:	2051	2830	3270		2400		
[7]	1200	4252	3709				
AY2007/08:	2051	2052	2053				FYSem
[4]							
AY2008/09:	Mini-sabbatical, fall qtr.						
[4]	2251	2051	2052				
	4252						
AY2009/10	FYSem, 2051, 2062, 2830						
[5]	4252						
AY2010/11	2053, 4251, 3270						
[3, acting Dept chairman spring'11]							
AY2011/12	FYSem, 2061, 2062						

[3]
 AY2012/13 2051, 2052, 2053, 3270, 4995, 6991/5
 [5]
 AY2013/14 NATS (1011, 1012, 1013)
 [3]
 AY2014/15 NATS (1011, 1012, 1013)
 [3]
 AY2015/16 Sabbatical, 3252
 [1]
 AY2016/17 2051, 2052
 [2]
 AY2017/18 2061, 2830, 2053
 [3]
 AY2018/19 FYSem, 1050, Nuc. Astrophys.
 [3]
 AY2019/20 1070, 2830, covid, 2053
 [3]
 AY2020/21 3995-3, 3995-2, 3270-1
 [3]

Total DU courses taught: 107

Some lessons learned:

I note the anti-correlation between number of courses I taught during a time of Department duress [AY2002-06, 2 to 3 per quarter!] and research proposal and publication productivity [detailed below]. Clearly if we are to sustain the research mission, care to avoid such loads must be taken. With the hiring new faculty after 2006, course loads have been more equitably shared.

A2. The teaching profession

To me, teaching is about being there for students – in and out of the classroom. There is no other magic formula for success in this. Apparatus comes and goes – be it chalkboards, powerpoint, clickers, chatrooms or social websites – but the personal interaction remains central.

We are fortunate to participate in the private college milieu with small classes – so key to the interaction with students. As we moved forward through North Central Accreditation processes, the opportunity to reflect on how our structured requirements affect the student experience was valuable, especially for younger faculty in terms of shaping the future of the educational process at DU. Whereas the process of assessment has great potential, among my goals was a more careful consideration of the valuable aspects of the Assessment process, so it can be used to aid both the teacher and the student experience. Much has been made of collaborative learning, non-traditional learning in non-lecture venues and peer instruction. I have weighed the merits of diverse approaches and implemented useful aspects of these in my classes, and dialogued with faculty colleagues and others in optimizing these approaches in STEM venues.

Over the past decade, online learning and course platforms such as Canvas (and previously Blackboard) have become important factors in course delivery at DU. Anticipating this, the DU Office of Teaching and Learning began to offer instruction in online course delivery and using course-support tools. I completed several of these instructional packages starting in 2012, with the intent to offer online classes and modules, and thus was better prepared for the pandemic-driven shift in 2020.

It has been an honor to revive the role of Astronomy in our Physics & Astronomy Department [P&A]. In the mid-1990s, Astronomy had been dropped from the Department name, following the departure of Prof. Ed Everhart, leaving no one to teach the upper level astro classes. However, with my hiring, my colleagues agreed to restore the full department name. This, along with the visibility of the new Mount Evans Observatory project, helped provide additional astronomy hiring opportunities in the first decade of the new century, when DU was persuaded to repopulate the P&A faculty numbers. Along with several physicists and biophysics faculty, two astronomers were added to the Department tenure line, namely Toshiya Ueta and Jennifer Hoffman. Together, we have elevated the visibility of Denver U on the international astronomy stage through publications, collaborations, successful students, and conference participation. I hope the Womble endowment resources can remain focused on pursuing similar 'educational research in astronomy and astrophysics' as directed by Mr. Womble, to the benefit of DU students and faculty.

A3. Student mentoring

For the record, I recount here some of the students with whom I've had the privilege to engage, and their outcomes:

Doctoral students mentored:

Professor Michelle Creech-Eakman – DU PhD 1997 (infrared spectra of evolved stars), who is now tenured professor of Physics at New Mexico Tech, Socorro. Among her roles there aside from Chairperson, is as Chief Scientist for the Magdalena Ridge Observatory Interferometer project. She recently co-authored an article in Physics Today (6/09) on Prospects for Interferometry and is a member of the National Academy astronomy decadal study taskforce.

Dr. Colby Jurgenson – DU PhD 2005 (infrared spectropolarimetry), who initially was hired as Optical Scientist for the same Magdalena Ridge Observatory Interferometer project near Socorro, NM. His technical skills are highly suited for the intricate optical designs required to make modern interferometry successful. He has been head-hunted by other organizations that recognize his level of skills in this area, resulting in a move to Yale University as instrument scientist in support of planet-finding spectroscopy on the Discovery Channel 4 meter telescope, and then to Ohio State Univ, working on instrument support for their role in the Giant Magellan Telescope project.

Dr. Brian Kloppenborg – DU PhD 2012 (interferometric imaging) was postdoc at the Bonn Germany Institute of Astronomy and at Georgia State University, prior to joining private industry in support of Space Situational Awareness projects based at Peterson AFB in Colo Springs.

Dr. Alexa Hart – DU PhD 2013 (infrared spectroscopy) went directly into private industry (Raytheon).

Dr. Richard Pearson – DU PhD 2015 (thermal models for accretion disks in binary star systems) has become an Assistant Professor in the Dept. Physics at Embry-Riddle Aeronautical University, Florida.

Dr. Kathleen Geise – DU PhD 2015 (spectropolarimetry of binary star systems) initially was instructor and then sciences program chairperson at Community College of Aurora and involved at a national level in US First Robotics competition management.

Terminal Masters students:

Ian McNabb 2006 "Spitzer Space Telescope Planetary Systems" → Calif software company;

Therese Fukuda 2002 "Monitoring SiO Masers in S Persei" → Arapahoe Community College faculty;

Michael Edwards 2001 "Planet-making in Nearby Stars" → defense contractor, Texas

Mary Dahm 1996 "Mid-Infrared Imaging of Star Forming Regions" → Raytheon

Jessica Reynolds 1995 "Comet Shoemaker-Levy 9 Collision with Jupiter" → Cherry Creek High School faculty.

Recent graduate students:

Graduate student research sponsor for David Melnick, 2019-21, M.S. level.

Dissertation Committee Member, Andrew Fullard (Univ. Denver), Physics & Astronomy, successfully defended, 2019.

Doctoral Paper Committee Director/Advisor, Tristan Wolfe (D.U.), Physics & Astronomy, Astronomical Polarimetry. Thesis proposal accepted, early 2016. Candidate left for job with Boeing in Jan 2019 & hoped to work towards completion, but life intruded.

Dissertation Committee Member, Manisha Shrestha (DU), Physics & Astronomy, Polarization in Bow Shock Nebulae, Proposal. (August 26, 2015 – 2018). Thesis proposal presented 8-26-2016.

Supervised Research, Justus Gibson (DU), Physics & Astronomy, Astronomical Spectroscopy, two refereed papers 2018 then grad school UC Boulder 2018.

Dissertation Committee Member, Leah Huk (Univ. Denver), Physics & Astronomy, Supernova spectropolarimetry. (October 28, 2013 - May 15, 2017).

Dissertation Committee Member, Jamie Lomax (DU), Physics & Astronomy, Polarization in Interacting Binaries, Proposal. (2010 – 2013). Thesis defense Aug. 2013.

Oral Defense Dissertation Chair, Engineering Grad Students (RSECS), Mechanical & Materials Engineering. (May - June 2016).

Spring 2016 – chaired thesis defense committees: Adam Pender (May 3, Corinne Lengsfeld et al.) & Saka Pranith (June 2, Matt Rutherford et al.)

Dissertation Director, Richard Pearson (Univ. Denver), Physics & Astronomy, Binary star systems with asymmetrically heated disks: Thermal phase curves for the disk in epsilon Aurigae, September 1, 2011 - August 31, 2015. Thesis defense, 7/17/2015.

Dissertation Director, Kathleen Geise (Univ. Denver), Physics & Astronomy, Spectropolarimetry of epsilon Aurigae, September 30, 2013 - June 6, 2015. Thesis defense, June 2015.

Oral Defense Dissertation Chair, James Lee (Univ Denver), Mechanical & Materials Engineering, Thermal study of cryocooled fuel storage in orbit, Completed. (October 25, 2013). Successful PhD thesis defense, 10-25-2013

Master's Thesis Oral Defense Chair, Brune Christopher (DU/SECS), Electrical & Computer Engineering, Completed. June 2013.

Master's Thesis Oral Defense Chair, Audrey Seiler (DU/MFA/Schwayder), Art & Art History, Nocturnal Scenes. Thesis defense May 2013.

Recent graduate students:

In the past years, not all students have been encouraged to continue into candidacy – some because of inclination and external factors, others due to course and exam challenges. In most cases, an astronomy/astrophysics Master's Thesis was produced and success in other post-graduation areas begun:

Mary Dahm; Therese Fukuda; Ian McNabb; Brooke Myers; Jessica Reynolds; Neeharika Thakur; Jeffrey Sudol (UWyoming); Robert Thompson (UWyoming).

Undergraduate/Senior Thesis, as primary thesis advisor:

Caroline Leach 2021 "Gravitational Wave Radiation and Heavy Element Nucleosynthesis".

Aaron Bradley 2009 "Molecular Condensation in Circumstellar Media" → Berkeley graduate program.

Ryan McDuffee 2009 "Unified Field Theory Revisited" (B.A. student)

J. Matt Dahl 2008 "Automation of the Student Astronomy Lab Telescope" → Kepler project.

Rachel Matson 2006 "Galactic Open Clusters" → Georgia State Univ, graduate program

Anuradha Bhatia 2006: "Photovoltaics and circumstellar silicates" → Rochester Inst.

Jeffrey Stout 2005 "Spectropolarimetric Imaging in the Mid-Infrared" & RHODES Scholarship recipient, 2006 → Oxford, Boston Univ & Phillips Academy
Engineering Senior Design Project group, 2003 "Automating the Student Astronomy Lab Telescope"

Justin Carricaburu 2001 "Calculating the orbits of asteroids" → med school

Engineering Senior Design Project 2001: "Mt.Evans Wind Power"

Therese Ostrowski 2000 "Study of Hipparcos Mira Variable Stars" → DU grad school

Matti Jalakas 1996 "Site Survey, Mt. Evans Observatory" → business school

Undergraduate Minors in Astrophysics:

In addition to those who completed senior thesis work with Drs. Hoffman and Ueta lately, during a previous decade when said thesis was not a departmental requirement, the following students were mentored last decade and completed the Astrophysics Minor:

Rachel Matson, BS Physics, now affiliated with Gemini Observatory

Naomi Pequette, BS Physics, now affiliated with Denver Museum Nature Science.

Rebecca Rose, BS Physics, Astronomy Minor, PinS

Heather Harland, BS Physics, Astronomy Minor, PinS

Emily Howard, BS Physics, Astronomy Minor

Karin Ranero, BS Physics, Astronomy Minor, PinS

Matti Jalakas, BS Physics, Astronomy Minor

Facilitating undergraduate Minors in Physics:

Because of an interest in astronomy topics and due to a shortage of faculty offerings for other 2000 level coursework, my second year 4 qtr-hr astronomy classes have become a popular way for General Physics [15 qtr-hr] and University Physics [15 qtr-hr] students to complete their 20 qtr-hr Physics Minor, sometimes with an Independent Study credit. Over the past decades, a significant fraction of Physics Minors granted have occurred in this manner.

Beyond routine classes, in whatever form provides best acceptance in students' minds, is the fact of our historic Chamberlin Observatory, which provides the potential to be more of a metro area/regional resource in astronomy and astrophysics.

Additionally, I have served on PhD committees for non-astronomy students, including:
Paula DeCorte, Atmospheric Physics, 2000 Topic: Retrieval of Atmospheric Constituent Profiles in solar spectra.

Brooke Myers, Atmospheric Physics, 2001 Topic: Long wave Infrared Observations of the South Pole Atmosphere.

AY05/06: External Chairman, M.Sci. committee, Ryan Stadtmuller, CHEM
Topic: Advances in Remote Sensing Instrumentation [Advisor: D.Stedman]

B. Research

1. Research objectives

My research work, like others in science, has been shaped by opportunities and transformative technological developments over the past few decades, particularly including spaceflight and instrumentation advancements.

My 1977 thesis work at Michigan was based on high resolution stellar spectroscopy, including photographic-era archives thereof, and quantitative spectroscopy involving numerical simulations with the then best available radiative transfer codes, on early supercomputers at NCAR. In an extended postdoctoral period, my work on evolved stars and interacting binaries was shaped by the availability of satellite ultraviolet (IUE) data and then infrared space telescope (IRAS) time and support, which led to my NASA Key Project on the European Infrared Space Observatory just prior to accepting the Womble chair position at DU.

On arriving at DU in 1993, with the charge to redevelop our high altitude observatory (which became the Meyer-Womble Observatory atop Mt. Evans at 14,148 ft elevation), plus the then newly available declassified mid-infrared detectors, we endeavored to develop a cryogenic thermal infrared imaging camera (TNTCAM), spectrometer (TGIRS) and polarimeter (TNTPOL). In 1997, NSF awarded DU a Major Research Infrastructure (MRI) grant to improve the designs and performance, leading to our TNTCAM2 imaging polarimeter. TNTCAM2 was used at the Wyoming IR Observatory and the NASA IR Telescope Facility, Mauna Kea. Circa 2001, we began to develop the next step in the process, the spectropolarimeter (SIFTIR), but the relevant infrastructure in my Department was eroding with the decline of the Murcray atmospheric research group, plus the launch of the Spitzer infrared space telescope that quickly eclipsed most ground based thermal infrared efforts. Thus, my focus shifted from ground-based to space-based studies, as well as turning to an increasing interest in astronomical interferometry. The latter came about in part because my PhD student, Michelle Creech-Eakman, then was working at Caltech and JPL, in the Palomar and Keck interferometry groups.

In parallel with these developments in infrared astronomy were the changes in digital imaging and computer control of telescopes. By the mid-1990s, DU telescopes were equipped with digital imagers and were being used by students for research projects. By the late 1990s, I teamed with Software Bisque, New Mexico Skies and the Youth Astronomy section of the Astronomical League to develop and promote internet access to telescopes in New Mexico and Chile. Our initial effort, sponsored in part by a Toyota Foundation grant, resulted in the Student Telescope Network that attracted hundreds of student users to DU websites – making some of our astronomy pages among the top 50 most visited DU websites during the first years of this decade. The fruition of these efforts lived on in the form of TzecMaun.org foundation free internet telescope access for DU astronomy students until recently. I served as a regional broker for new accounts on the system, which has helped attract and retain undergrad students for DU.

2. Grants and publications

Grants received at the University of Denver:

For the record, a number of proposals were submitted to NSF and other agencies during the 2010-2018 timeframe, but none were funded. I will add that the substantial travel-time burden associated with operating DU's high altitude Mount Evans Observatory during summers, limited my capacity to develop new scientific directions and proposals.

2010: NSF Astronomy proposal, Epsilon Aurigae's First Eclipse of the Millennium - the Campaign Resumes, 3 years, \$203k: funded at \$100k for one year.
Post-2010 list of submitted proposals appended.

6/15/08 CitizenSky & IYA - NSF Informal Science Education, 6/08, Co-I on national effort, A. Henden, AAVSO, P.I., \$750k/3 years award recommended, negotiated DU share \$30k/year.

8/08, JPL/Spitzer, \$10k, Interferometric Snapshot Survey [PI, DU#36527]
7/07, JPL/Spitzer, \$17.4k, The Circumstellar-Interstellar interface Revealed [PI, DU#36396]

3/07, Utah State Univ., \$10k, Rocky Mountain NASA Spacegrant Consortium [PI, DU#36111A]

8/05, JPL/Spitzer, \$20.5k, Mid-Infrared Mass Loss Histories [PI, DU#36145]

8/05, JPL/Spitzer, \$18k, Pre-eclipse observations of epsilon Aurigae [PI, DU#36144]

1/02, Toyota Foundation, \$15k, The Student Telescope Network [PI, DU#10000-146237]

9/98, NASA/JPL, \$162.0k, Key Project ,Infrared Space Observatory [PI, DU#535134,5,6]

9/97, NSF-MRI, **\$503k**, Ten and Twenty Micron Infrared Camera phase 2 [PI, DU#534958]

10/96, NASA/JPL, \$237.0k, Key Project Infrared Space Observatory [PI, DU#534786]

7/94, NASA, \$66k, Graduate Student Research Participation [PI, DU#534437]

10/93, NASA/HQ, \$211k, Key Project Infrared Space Observatory [PI, DU#534268]

9/92, NASA/GSFC, \$31k, ROSAT X-ray satellite [PI, DU#534106]

8/92, NASA/GSFC, \$84k, International Ultraviolet Explorer [PI, DU#534121]

Additional funding as Co-I:

7/07, JPL/Spitzer, \$100.3k, Mass Loss History of Evolved Stars [PI Ueta]

TELESCOPE TIME AWARDS (“beam time” without additional funding):

Ctr. for High Angular Resolution Astronomy (CHARA) Interferometer, Mt. Wilson, CA

NASA Infrared Telescope Facility (IRTF), Gemini Observatory, Mauna Kea, HI

Spitzer Space Telescope (NASA) - earth-trailing orbit, launched 8/25/03.

Tzec Maun Foundation, Mayhill NM internet telescopes for students, www.tzecmaun.org

Wyoming Infrared Telescope, Laramie WY

SELECTION OF SUBMITTED PROPOSALS (some not funded; consult with ORSP for updated lists):

2019 NSM –Stencel, CCESL Grand Challenge, Amount: \$4787, Awarded.

Abstract/Description: Support for undergraduate physics majors to research quantitative aspects of light pollution.

2019 In prep: NSF, Astronomical Polarimetry of Exoplanet atmospheres. Requested: \$950000 over 3 years. Robert E. Stencel Adaptation of new optical methods to detect atmospheric structure in planets orbiting other stars. Collaboration with Aerospace Corp.

2019 In prep: NSF, Advanced Informal Science Education, Requested: \$250000 over 2 years, to expand educational outreach at DU's historic Chamberlin Observatory. \$100k for 2 years. Joint program with Cincinnati Observatory Center.

2017: A Full-Stokes Polarimeter for Stellar and Interstellar Studies, Sponsored by National Science Foundation, Federal, Proposed: \$244730, declined

2017: Proposal to build IMPLOSE: IMaging POLareimeter for a Survey of Exoplanets, Sponsored by National Aeronautics and Space Administration, Federal, Proposed: \$45000, declined

2016: Exploring Exoplanets with Polarimetry: IMPOLSE Detections of Exoplanets and their Atmospheres, Sponsored by National Science Foundation, Federal, Proposed: \$930432, declined

2015: Differential Spectral Energy Distributions to Define Thermal Structure in Circumstellar Disks, Sponsored by National Science Foundation, Federal, Proposed: \$313751, declined

2013: The Build-up from Dust: Identifying Circumstellar and Circumbinary Dust property Evolution, Using Heating and Cooling Rate Observations, Sponsored by National Aeronautics and Space Administration, Federal, Proposed: \$214389, declined

2012: Assessing circumstellar and circumbinary dust properties using heating and cooling rate observations, Sponsored by National Science Foundation, Federal, Proposed: \$274046, declined

2010: Thermo-chemistry and Dynamics of the Transiting Disk in Epsilon Aurigae, Sponsored by National Science Foundation, Federal, Proposed: \$301540, declined

2009: Two Internationalization Grant Program proposals, joint with Prof. Ueta

2008: Japan Society for Promotion of Science - visiting scholar budget request, \$10,000, jointly proposed with Dr. Yamamura, ISAS/JAXA for visits in 2009

2007: "HSO, zeta Aur stars and the mysterious epsilon Aur" observing time proposal for the Herschel Space Observatory, \$674k for 8/2008-4/2013.

2007: "Infrastructure Upgrades to the Mt. Evans Observatory" - \$85k, Mt.Cuba Astronomy Support Program.

2006: NSF Major Research Infrastructure proposal by J. Buckley et al. Washington Univ, St. Louis, "Development of a wide-angle atmospheric Cherenkov telescope array"

2003: Stellar Imager Vision Proposal, for medium class spacecraft, NASA, 9/1/03, \$250k, collaborator status, PI Ken Carpenter, NASA Goodard, declined

2003: "NATS Lab Nights at Chamberlin Observatory" DU CTL: Center for Teaching and Learning grant proposal.

2003: Proposal to host 2004 meeting of the Colorado Renewable Energy Society at DU campus, jointly with Sigma Xi - accepted.

3/03: "Does an extended MRN distribution of dust particle sizes actually describe any circum-stellar outflow?" phase 1 observing proposal for NASA Chandra (X-ray) Space Telescope Cycle 5 - declined in 10:1 over-subscription

2003: "Infrared Spectropolarimetry of Evolved Stars" NASA Grad Student Research Participation [GSRP] program, Colby Jurgenson, P.I., \$24,000 for each of 3 years, declined in heavy competition.

2003: "Polarimetry of NGC 7027: Smooth or Lumpy Dust Distributions?" Phase 1 observing proposal for Hubble Space Telescope, 10:1 competition.

2002: "Westward Expansion of US Astronomy, 1888-1894", \$5,000 publication grant request. Dudley Observatory (Schenectady, NY) history of astronomy program.

2002: Proposal to host the 2004 June meeting of the American Astronomical Society in Denver (Convention Center, downtown), joint with U Colo, DMNS and others - accepted.

2001: NIST Advanced Technology Program, "COLDSENSE - Achieving Steady Liquid Helium Temperatures without Liquid Helium", \$914k with \$227k subcontract to DU.

2000: NSF Advanced Technology "Modification of TNTCAM into a Remotely Operated Instrument at WIRO" \$344,705.

1999: "Development of a Prototype One Meter New Technology Segmented-Mirror Active-Optics Telescope for Astrometry", D.Klebe et al. \$545k over 3 years, NSF Major Research Infrastructure program.

1997: NASA SOFIA Instrumentation program "An Imaging PhotoPolarimeter for the Stratospheric Observatory for Infrared Astronomy" D.Clemens - Boston Univ. P.I., \$2.8M for 5 years.

1996: NASA "Evolutionary Demographics of Proplyds and Postplyds", \$200k over 2 years.

1996: NASA "Mid IR Coronagraphy of Nearby Protoplanetary Disks", \$100k over 2 years.

1996: NASA "Coordinated Mid-IR Imaging of Comet Hale-Bopp with TNTCAM", \$100k over 2 years.

1996: NSF Research Instrumentation program "Remote Data Acquisition and Distribution", \$1,086,000.

1995: USFS: Environmental Assessment of Mt. Evans Observatory Upgrades, submitted to US Forest Service, 4/95.

1995: NASA-IUE - Nineteenth Episode Ultraviolet Observations of Long Period Interacting Binaries.

3. Publications – a compendium of my 520+ listed publications since the 1970s can be accessed electronically using the SAO/NASA Astrophysics Data System – search on name, stencel robert – <https://ui.adsabs.harvard.edu/> .

Publication summary:

Based on the adsabs.harvard.edu/abstract service compilation:

1971-1980: 59 papers; 1981-1985: 115 papers; 1986-1990: 81 papers;
1991-1995 (arrived at DU): 52 papers; 1996-2000: 55 papers; 2001-2005: 45 papers – during a period of heavy course loads; 2006-2009: 33 papers; 2010 – 2015: 17 papers; 2016 – 2020: 2 papers & retirement.

Citation index: 4,402 citations to 522 papers listed, H=38.

Among my most cited Denver-sourced papers, as of mid-2021, are:

(cited by)

183 Kloppeborg, B., Stencel, R., Monnier, J. and 23 others, “Infrared images of the transiting disk in the epsilon Aurigae system”, Nature, vol. 464, no. 7290, pp. 870–872, 2010. doi:10.1038/nature08968.

173 Backman, D. E., Dasgupta, A., and Stencel, R. E., “Model of a Kuiper Belt Small Grain Population and Resulting Far-Infrared Emission”, The Astrophysical Journal, vol. 450, p. L35, 1995. doi:10.1086/309660.

74 Ueta, T., Stencel, R. and Speck, A., et al. “Detection of a Far-Infrared Bow Shock Nebula around R Hya: The First MIRIAD Results”, The Astrophysical Journal, vol. 648, no. 1, pp. L39–L42, 2006. doi:10.1086/507627.

For comparison, highly cited pre-DU papers include:

227 Bopp, B. W. and Stencel, R. E., “The FK COM stars.”, The Astrophysical Journal, vol. 247, pp. L131–L134, 1981. doi:10.1086/183606.

225 Garmany, C. D. and Stencel, R. E., “Galactic OB associations in the Northern Milky Way Galaxy. I. Longitudes 55 to 150.”, Astronomy and Astrophysics Supplement Series, vol. 94, pp. 211–244, 1992. <https://ui.adsabs.harvard.edu/abs/1992A%26AS...94..211G/abstract>

3a. Refereed publications with University of Denver byline:

2018 “Structure in the disc of epsilon Aurigae - analysis of ARCES and TripleSpec spectra from the 2010 eclipse”, Gibson, J. and Stencel, R., Monthly Notices of the Royal Astronomical Society, vol. 479, no. 2, pp. 2161–2182, 2018. doi:10.1093/mnras/sty1552, <https://ui.adsabs.harvard.edu/abs/2018MNRAS.479.2161G/abstract>

2018 “MESA models for the evolutionary status of the epsilon Aurigae disk-eclipsed binary system”, Gibson, J. and Stencel, R., Monthly Notices of the Royal Astronomical Society, vol. 232, 5026–5031. <https://ui.adsabs.harvard.edu/abs/2018MNRAS.476.5026G/abstract>

2015 “Interferometry of ϵ Aurigae: Characterization of the asymmetric eclipsing disk” B. Kloppenborg, R. Stencel, et al., Astrophysical Journal Supplement Series, Oxford, UK, Volume: 220, Issue/Edition: 1, Article #12, 119 pages, <http://arxiv.org/pdf/1508.01909v1.pdf>

2015 “Transient Carbon Monoxide Absorption and Persistent Brackett Alpha Emission in Epsilon Aurigae”, R. Stencel, R. Blatherwick & T. Geballe, in The Astronomical Journal, London, UK, Volume: 149, Issue/Edition: 3, Pages: 6, <http://iopscience.iop.org/1538-3881/149/3>

2015 “Epsilon Aurigae - A Two Century Long Dilemma Persists”, R. Stencel, chapter in book: Giants of Eclipse - The Zeta Aurigae and Other Binary Systems, Springer-Verlag, Heidelberg, Germany, Volume: ASSL Series 408, Pages: 107-121, www.springer.com/series/5664 , ISBN/ISSN: 978-3-319-09198-3 .

2015 “Constraints from Asymmetric Heating: Investigating the Epsilon Aurigae Disk”, R. Pearson & R. Stencel, The Astrophysical Journal, London, UK, Volume: 798, Issue/Edition: 1, Pages: 11-23, http://iopscience.iop.org/0004-637X/798/1/11/pdf/apj_798_1_11.pdf

2014 “Commissioning Results of a New Polarimeter: Denver University Small Telescope Polarimeter (DUSTPol)”, T. Wolfe & R. Stencel, Cambridge University Press, Cambridge, UK, Volume: Proceedings of the International Astronomical Union, Volume 305, Pages: pp. 200-206, <https://doi.org/10.1017/S1743921315004779>

2014 “Probing disk inhomogeneities using spectropolarimetry in the extreme binary epsilon Aurigae”, K. Geise & R. Stencel, Proceedings of the International Astronomical Union, Volume 305, pp. 293-298, Cambridge University Press, UK, Volume: 305, Pages: pp. 293-298, <https://doi.org/10.1017/S1743921315004925>

2014 Co-Editor, Conference Proceedings, “Resolving the Future of Astronomy with Long Baseline Interferometry”, M. Creech-Eakman, J. Guzik & R. Stencel, Astronomical Society of the Pacific, SF, Calif., USA, Volume: 487, Pages: 415, www.aspmonographs.org , ISBN/ISSN: 978-1-58381-858-9

2013 “Results of the Recent epsilon Aurigae Eclipse Campaign”, R. Stencel, in Central European Astrophysical Bulletin, Zagreb, Croatia, Volume: 37, Issue/Edition: 1, Pages: 85-98, <http://adsabs.harvard.edu/abs/2013CEAB...37...85S>

2013 “Merging Recent and Historic Spectra of epsilon Aurigae: Properties of the system's components, and discovery of a mass transfer stream”, R.E. Griffin & R. Stencel, Publications Astronomical Society of the Pacific, USA, Volume: 125, Issue/Edition: July 2013, Pages: 775-792, <http://adsabs.harvard.edu/abs/2013PASP..125..775G>

2012 “epsilon Aurigae—An Overview of the 2009–2011 Eclipse Campaign Results”, R. Stencel, in Special issue of eJAAVSO vol.40 #2 - eps Aur results, Journal of the

American Association of Variable Star Observers, Cambridge, MA, USA, Volume: 40, Issue/Edition: 2, Pages: 618-633, <http://www.aavso.org/jaavso-v40n2> ,
<http://www.aavso.org/eps-aur-abstract-stencil>

2012 “High angular and spectral resolution views on the complex system of ϵ Aurigæ”, D.Mourard, P. Harmanec & R.Stencel, et al. Astronomy and Astrophysics, Volume: 544, Pages: 91ff, <http://adsabs.harvard.edu/abs/2012A%26A...544A..91M>

2012 “Observations of epsilon Aurigae with the Herschel Space Observatory” D. Ladjal, R.Stencel, D. Hoard, S.Howell, Astrophysical Journal Letters, Volume: 748, Pages: L28, <http://adsabs.harvard.edu/abs/2012ApJ...748L..28H>

2011 “Polarimetry of Epsilon Aurigae from Mid Eclipse to Third Contact., Soc. Astron. Sci. Symposium, Volume: 30, Pages: 103, <http://adsabs.harvard.edu/abs/2011SASS...30..103C>

2011 “Spectral and photometric analysis of the eclipsing binary Aurigae prior to and during the 2009-2011 eclipse”, P.Chadima, B.Kloppenborg, R.Stencel et al. Astron. Astrophys. 530, Volume: 530:, Pages: 146, <http://adsabs.harvard.edu/abs/2011A%26A...530A.146C>

2011 “Infrared Studies of epsilon Aurigae in eclipse”, R.Stencel, B.Kloppenborg, R.Wall, et al. Astronomical Journal, Volume: 142, Pages: 174, <http://adsabs.harvard.edu/abs/2011AJ....142..174S>

2010 “The Interface Between the Stellar Wind and Interstellar Medium around R Cassiopeiae Revealed by Far-Infrared Imaging”, T.Ueta, R.Stencel, I.Yamamura, et al. Astronomy and Astrophysics, Volume: 514, A16, <https://ui.adsabs.harvard.edu/abs/2010A%26A...514A..16U/abstract>

2010 “Infrared images of the transiting disk in the Aurigae system”, B.Kloppenborg, R.Stencel, J.Monier et al. NATURE, UK, Volume: 464, Issue/Edition: 7290, Pages: 870-872, <http://arxiv.org/abs/1004.2464> & <https://ui.adsabs.harvard.edu/abs/2010Natur.464..870K/abstract>

2008 “Interferometric Studies of the Extreme Binary ϵ Aurigae: Pre-Eclipse Observations”, Stencel, R.; Creech-Eakman, M.; Hart, A.; Hopkins, J.; Kloppenborg, B.; Mais, D. 2008 Astrophysical Journal Letters vol. 689, p.L137-141. <https://ui.adsabs.harvard.edu/abs/2008ApJ...689L.137S/abstract>

2007 “Adventures in J- and H-Band Photometry of Evolved Stars” Bradley, A. J.; Stencel, R. E., The Journal of the American Association of Variable Star Observers, vol. 36, no. 1, p. 127-139.

2006 “Detached shells as tracers of asymptotic giant branch-interstellar medium bow shocks”, Wareing, C. J.; Zijlstra, Albert A.; Speck, Angela K.; O'Brien, T. J.; Ueta, Toshiya; Elitzur, M.; Gehrz, R. D.; Herwig, F.; Izumiura, H.; Matsuura, M.; Stencel, R.E., Monthly Notices of the Royal Astronomical Society: Letters, Volume 372, Issue 1, pp. L63-L67.

2006 Ueta, T.; Speck, A. K.; Stencel, R. E.; Herwig, F.; Gehrz, R. D.; Szczerba, R.; Izumiura, H.; Zijlstra, A. A.; Latter, W. B.; Matsuura, M.
The Astrophysical Journal, Volume 648, Issue 1, pp. L39-L42.
“Detection of a Far-Infrared Bow Shock Nebula around R Hya: The First MIRIAD Results”

2006 Stencel, R.E.
Organizations and Strategies in Astronomy, Volume 6. Edited by André Heck, Strasbourg Astronomical Observatory, France. Astrophysics and Space Science Library Volume 335. ISBN 1-4020-4055-5. Published by Springer, 2006., p.97-109
“Challenges and Opportunities in Operating a High-Altitude Site”

2006 Stencel, Claire M.; Stencel, Robert E.; Montgomery, Glenn E.
University of Denver Astronomy Program. ISBN 0-9762017-2-0
“Denver's great telescope : guidebook to the University of Denver's historic Chamberlin Observatory”

2004 Mais, D. E.; Stencel, R. E.; Richards, D.
The Journal of the American Association of Variable Star Observers, Vol. 33, No. 1, p. 48-58. “Monitoring of Mira Variable Stars”

2004 Howard, Emily S.; Webb, James R.; Pollock, Joseph T.; Stencel, Robert E.
The Astronomical Journal, Volume 127, Issue 1, pp. 17-23.
Microvariability and Long-Term Variability of Four Blazars

2003 “Mid-Infrared Imaging Polarimetry of NGC 7027”, Jurgenson, C. A.; Stencel, R. E.; Theil, D. S.; Klebe, D. I.; Ueta, T., The Astrophysical Journal, Volume 582, Issue 1, pp. L35-L38. <https://ui.adsabs.harvard.edu/abs/2003ApJ...582L..35J/abstract>

1999 “Infrared Space Observatory Photometric Search of Main-Sequence Stars for Vega-Type Systems” Fajardo-Acosta, S. B.; Stencel, R. E.; Backman, D. E.; Thakur, N.
The Astrophysical Journal, Volume 520, Issue 1, pp. 215-222.
<https://ui.adsabs.harvard.edu/abs/1999ApJ...520..215F/abstract>

1999 “First Light at the New Mt. Evans Observatory”, Stencel, Robert E. The Journal of the American Association of Variable Star Observers, vol. 27, no. 1, p. 61-64,
<https://ui.adsabs.harvard.edu/abs/1999JAVSO..27...61S/abstract>

1999 "Photometry of Hipparcos Variable Stars" Ostrowski, Therese A.; Stencel, Robert E., The Journal of the American Association of Variable Star Observers, vol. 27, no. 1, p. 37-40, <http://adsabs.harvard.edu/full/1999JAVSO..27...37O>

Backman, D. E.; Fajardo-Acosta, S. B.; Stencel, R. E.; Stauffer, J. R.
1997 Astrophysics and Space Science, v. 255, Issue 1/2, p. 91-101
Dust Disks around Main Sequence Stars

Fajardo-Acosta, S. B.; Stencel, R. E.; Backman, D. E.
1997 Astrophysical Journal Letters v.487, p.L151
Infrared Space Observatory Mapping of 60 micron Dust Emission Around Vega-type Systems

Ross, R. W.; Stencel, R. E.
1996 Strolling Astron., Vol. 39, No. 4, p. 172 – 176
A survey of lunar domes.

Creech-Eakman, Michelle J.; Stencel, Robert E.
1997 Astrophysics and Space Science, Volume 251, Issue 1-2, pp. 157-163
Variation of Silicate Dust Features with Phase Mid-IR Monitoring of Oxygen-Rich Mira Variable Stars

Greiner, J.; Bickert, K.; Luthardt, R.; Viotti, R.; Altamore, A.; Gonzalez-Riestra, R.; Stencel, R. E.
1997 Astronomy and Astrophysics, v.322, p.576-590
The UV/X-ray emission of the symbiotic star AG Draconis during quiescence and the 1994/1995 outbursts.

Creech-Eakman, Michelle J.; Stencel, Robert E.; Williams, W. John; Klebe, Dimitri I.
1997 Astrophysical Journal v.477, p.825-831.
Silicate Feature Variation in Long-Period Variable Stars. I. Initial Observations

Little-Marenin, I. R.; Stencel, R. E.; Staley, S. B.
1996 Astrophysical Journal v.467, p.806-810.
Variable Dust Features in Infrared Spectra of AU Cygni

Cuntz, Manfred; Deeney, Bryan D.; Brown, Alexander; Stencel, Robert E.
1995 Astrophysical Journal v.464, p.426-433.
Short-Term Chromospheric Variability in alpha Tauri (K5 III): Results from IUE Time Series Observations

Backman, D. E.; Dasgupta, A.; Stencel, R. E.
1995 Astrophysical Journal Letters v.450, p.L35-L39
Model of a Kuiper Belt Small Grain Population and Resulting Far-Infrared Emission

Hagen Bauer, Wendy; Stencel, Robert E.

1994 The Astronomical Journal (ISSN 0004-6256), vol. 107, no. 6, p. 2233-2239
Extended 60 micrometers emission from nearby Mira variables

Stencel, Robert E.; Potter, Daniel E.; Bauer, Wendy H.

1993 Astronomical Society of the Pacific, Publications (ISSN 0004-6280), vol. 105, no. 683, p. 45-50.

Rapid mass-loss transients in VV Cephei

Judge, P. G.; Luttermoser, D. G.; Neff, D. H.; Cuntz, M.; Stencel, R. E.

1993 Astronomical Journal (ISSN 0004-6256), vol. 105, no. 5, p. 1973-1986.

Line profile variations in M giants - Clues to mass-loss and chromospheric heating mechanisms

Additional papers prior to DU/1993 can be retrieved using name search at:

http://adsabs.harvard.edu/abstract_service.html

3b. Conference publications with Denver byline

Oral Presentation, 2018 AAS meeting, Amer. Astronomical Society, Denver, Contributed paper: MESA models for the interacting binary epsilon Aurigae, Conference, Academic, National, Presenters/Authors: Robert E. Stencel.

Abstract: <http://adsabs.harvard.edu/abs/2018MNRAS.476.5026G>

Press Conference 2018 American Astronomical Society meeting #232, Denver, American Astronomical Society, Denver, Press briefing: Brightest member of a new class of disk-eclipsed stars, Conference, Academic, National, Presenters/Authors:

Robert E. Stencel

Result of external support?No, Result of internal support?Yes, Division specific funding.

Abstract: Incorporating new GAIA DR2 parallax results helps resolve the long-standing mass ratio question for the epsilon Aurigae binary system.

Lecture, 2017 Astronomical League Convention, Astronomical League, Casper, Wyo., "Observatories near longitude 105 West", Conference, Academic, International, Invited: Yes, (August 18, 2017). Presenters/Authors: Robert E. Stencel.

Abstract: The historically high and dry climate of the Rocky Mountain region has given rise to numerous observatories. These include the classic 1894 large refractor in Denver, and a proliferation of public and private telescope facilities ever since -- both optical and even for cosmic ray studies. In this talk, we'll trace instrumentation and observational developments, from the pre-historic use of Medicine Wheels, to refractors, reflectors and multiple telescope systems -- all within the context of the effects of light pollution and climate change on astronomy and astrophysics.

Invited talk 2017 - NMT Colloquium series, New Mexico Tech - Dept. Physics, Socorro NM, "The role of interferometry in American astronomy", April 27, 2017.

Presenters/Authors: Robert E. Stencel. Abstract: The history of modern astronomical optical-infrared interferometry is presented in context of next generation instrumentation and techniques.

Oral Presentation 2017 Aspen Workshop on Exoplanet Formation and Dynamics, Aspen Center for Physics, Aspen, CO, “Polarimetry of Exoplanets - the next frontier”, Conference, Academic, International, March 26, 2017 - March 31, 2017.

Presenters/Authors: Robert E. Stencel. Abstract: Polarimetry of exoplanets can overcome technical limitations of prevailing methods (transits and Doppler shifts).

Poster 2017 National meeting, American Astronomical Society, American Astronomical Society, Dallas, TX, “Redevelopment of Mount Evans Observatory”, Conference, Academic, National, January 4, 2017. Presenters/Authors: Robert E. Stencel

Poster 2017 National meeting, American Astronomical Society, American Astronomical Society, Dallas, TX, Single-Shot Polarimetry for Astronomy using Stressed Optics, Conference, Academic, National, January 4, 2017.

Presenters/Authors: Tristan Wolfe, Author & Presenter and Robert E. Stencel, Co-Author Abstract: concept paper - use of birefringence in mechanically stressed optics to assist with polarization measurement of all Stokes vectors simultaneously.

Lecture 2016 Invited talk - Interferometric Advances in Astronomy V, Society of Photo-optical Instrumentation Engineering, Edinburgh, Scotland June 26-July 1, 2016, “Interferometry of disk-eclipsed binary star systems”, Conference, Academic, International, Refereed: Yes, Invited: Yes, Published in Proceedings: Yes. June 30, 2016. Presenters/Authors: Robert E. Stencel.

Poster, Bernard Lyot Conference 2015 - Circumstellar Disks, Univ. Montreal, Montreal, Quebec, “Structure Revealed in the Transiting Disk of epsilon Aurigae.” Conference, Academic, International, Published Elsewhere: Yes. (2015).

Presenters/Authors: Robert E. Stencel

Abstract: A new class of eclipsing binary stars with transiting disks is being recognized, and these provide the unique opportunity to study disk structure and dynamics during transit.

Invited Presentation 2013

Oral Presentation AAS Topical Sci Conf: Giants of Eclipse, American Astronomical Society, Monterey, CA – August 2013, Selected results, epsilon Aur campaign, and future, Conference, Academic, National, Invited: Yes. (2013). Presenters/Authors: Robert E. Stencel, Author & Presenter.

Oral Presentation, 2013, CHARA/NPOI Science Meeting, March 2013, Lowell Observatory, Flagstaff, AZ, “epsilon Aurigae: Adventures in interferometric imaging and spectro-interferometry - Featuring: high-dispersion spectroscopy, spectro-polarimetry, photometry & astrometry”, Conference, Academic, Refereed: No, Invited: Yes.

Presenters/Authors: Robert E. Stencel. Abstract: Update on interferometric and related observations of extreme binary system eps Aur.

Lecture 2012 Gemini Science Meeting, Gemini Observatory, San Francisco, “GNIRS observations of isotopic CO in epsilon Aurigae”, Workshop, Academic, International, July 17, 2012. Presenters/Authors: Robert E. Stencel.

Lecture 2012 XIIth Hvar Observatory Symposium, Hvar Observatory, Croatia, “Results of the epsilon Aurigae eclipse campaign”, Conference, Academic, International, Invited: Yes, Published in Proceedings: Yes. July 4, 2012. Presenters/Authors: Robert E. Stencel Abstract: Talk presented via Skype connection due to travel limitations.

Poster 2011 AAS, Boston 218: 230.05, “Towards A Full Orbital Solution For Epsilon Aurigae”. Presenters/Authors: Hemenway, P., Kloppenborg, B., Jensen, E., Osborn, W., and Robert E. Stencel. <http://adsabs.harvard.edu/abs/2011AAS...21823005K>

Poster 2011, AAS 218: 225.05, “Disk accretion in the Disk of epsilon Aurigae: Results of Monte Carlo Radiative Transfer Models”. Presenters/Authors: Pequette, N., Robert E. Stencel and Whitney, B. <http://adsabs.harvard.edu/abs/2011AAS...21822505P> .

Poster 2011 AAS Boston 218: 225.04, Boston, “Discovery Of Strong Helium 10830A Absorption In The Mid-eclipse Epsilon Aurigae.” Presenters/Authors: Robert E. Stencel, Kloppenborg, B., Sitko, M., Rayner, J., and Tokunaga, A. <http://adsabs.harvard.edu/abs/2011AAS...21822504S> .

Additional conference presentations:

Oral Presentation 2009, Citizen Sky Workshop, Adler Planetarium Chicago, “epsilon Aurigae: pre eclipse observations and campaign plans.” Presenters/Authors: Robert E. Stencel. Summary: long period eclipsing binary to be monitored during its 2009-2011 event.

Stencel, Robert E.

Binary Stars as Critical Tools & Tests in Contemporary Astrophysics, Proceedings of IAU Symposium #240, held 22-25 August, 2006 in Prague, Czech Republic. Edited by W.I. Hartkopf, E.F. Guinan and P. Harmanec. Cambridge: Cambridge University Press, 2007., pp.202-204 “Evidence for a Precessing Disk in the Extreme Binary Aurigae”

Hopkins, Jeffrey L.; Stencel, Robert E.

10 pages, PDF. Appeared in the Proceedings of the May 2007 Society for Astronomical Sciences annual conference - <http://adsabs.harvard.edu/abs/2007arXiv0706.0891H>
Recent UBVJH Photometry of Epsilon Aurigae

Jurgenson, C.; Stencel, R.

2005 Astronomical Polarimetry: Current Status and Future Directions ASP Conference Series, Vol. 343, Proceedings of the Conference held 15-19 March, 2004 in Waikoloa,

Hawai'i, USA. Edited by A. Adamson, C. Aspin, C. J. Davis, and T. Fujiyoshi, p.280
SIFTIR: A Mid-IR Imaging Spectro-polarimeter

Mais, D. E.; Stencel, R. E.; Richards, D.
2005 The Society for Astronomical Sciences 24th Annual Symposium on Telescope Science, held May 24-26, 2005. Published by Society for Astronomical Sciences, 2005., p.39ff. Automated Photometry, Period Analysis and Flare-up Constraints for Selected Mira Variable Stars

Jurgenson, Colby; Stencel, Robert
2004 High Resolution Infrared Spectroscopy in Astronomy, Proceedings of an ESO Workshop held at Garching, Germany, 18-21 November 2003. Edited by H.U. Käufel, R. Siebenmorgen, and A. Moorwood. Garching, Germany, 2005., pp. 92-95
SIFTIR: Spectro-Polarimetric Imaging Fourier Transform Spectrometer for the InfraRed

Stencel, R. E.; Jurgenson, C. A.; Ostrowski-Fukuda, T. A.
2004 Stars as suns: activity, evolution and planets, Proceedings of the 219th symposium of the International Astronomical Union held during the IAU General Assembly XXV, Sydney, Australia, 21-25 July 2003. Edited by A.K. Dupree and A.O. Benz. San Francisco, CA: Astronomical Society of the Pacific (ASP), 2004. Available on companion CD-ROM., p.925
"Interferometric Studies of Dust Formation in the Red Supergiant Star S Persei"

Stencel, R. E.; Ostrowski-Fukuda, T. A.; Jurgenson, C. A.; Phillips, A.
2003 The Future of Cool-Star Astrophysics: 12th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun (2001 July 30 - August 3), eds. A. Brown, G.M. Harper, and T.R. Ayres, (University of Colorado), 2003, p. 1074-1079.
"Microvariability among Selected Long Period Variables"

Edwards, M. L.; Stencel, R. E.
2003 The Future of Cool-Star Astrophysics: 12th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun (2001 July 30 - August 3), eds. A. Brown, G.M. Harper, and T.R. Ayres, (University of Colorado), 2003, p. 754-756.
"Metallicity and Infrared Debris disks: ISO Evidence for Anti-correlation"

Mais, D. E.; Stencel, R. E.; Richards, D.
The Society for Astronomical Sciences 22nd Annual Symposium on Telescope Science, held May 21-22, 2003. Published by Society for Astronomical Sciences, 2003., p.55ff.
Mira Variable Stars: Spectroscopic and Photometric Monitoring of this Broad Class of "Long Term Variable and Highly Evolved Stars"

Jurgenson, Colby A.; Stencel, Robert E.
2003 In: Mass-losing pulsating stars and their circumstellar matter. Workshop, May 13-16, 2002, Sendai, Japan, edited by Y. Nakada, M. Honma and M. Seki. Astrophysics and Space Science Library, Vol. 283, Dordrecht: Kluwer Academic Publishers, ISBN 1-4020-

1162-8, 2003, p. 253 - 254

“Mid-infrared polarimetry of axi-symmetric mass loss and the shaping of NGC 7027”

Mellon, Russell R.; Scheld, Daniel L.; Stencel, Robert E.

2003 SPIE: Large Ground-based Telescopes. Edited by Oschmann, Jacobus M.; Stepp, Larry M. Proceedings of the SPIE, Volume 4837, pp. 51-55

“Afocal Mersenne telescope for teaching and research”

Hannahoe, Ryan M.; Stencel, Robert E.; Bisque, Steve; Rice, Mike

2003 Low-Light-Level and Real-Time Imaging Systems, Components, and Applications. Edited by Johnson, C. Bruce; Sinha, Divyendu; Laplante, Phillip A. Proceedings of the SPIE, Volume 4796, pp. 255-262 (2003).

“The Student Telescope Network (STN) experiment”

Creech-Eakman, M. J.; Stencel, R. E.

2000 The Carbon Star Phenomenon, Proceedings of the 177th Symposium of the International Astronomical Union, held in Antalya, Turkey, May 27-31, 1996. Edited by Robert F. Wing, Astronomy Department, The Ohio State University, Columbus, USA. International Astronomical Union Symposia, Volume 177 Kluwer Academic Publishers, Dordrecht, 2000., p.527

“Mid-Infrared Silicate Variation in Long-Period, Oxygen-Rich Variable Stars”

Stencel, Robert E.

2000 Asymmetrical Planetary Nebulae II: From Origins to Microstructures, ASP Conference Series, Vol. 199. Edited by J. H. Kastner, N. Soker, and S. Rappaport. ISBN: 1-58381-026-9, 2000, p. 101ff.

“Prospects for Mid-infrared Imaging and Polarimetry with Denver's TNTCAM2”

Stencel, Robert E.

2000 Asymmetrical Planetary Nebulae II: From Origins to Microstructures, ASP Conference Series, Vol. 199. Edited by J. H. Kastner, N. Soker, and S. Rappaport. ISBN: 1-58381-026-9, 2000, p. 99ff.

“AGB Star Polar Breakout and the Origin of Aspherical Planetary Nebulae”

Creech-Eakman, M. J.; Stencel, R. E.

1999 Asymptotic Giant Branch Stars, IAU Symposium #191, Edited by T. Le Bertre, A. Lebre, and C. Waelkens. ISBN: 1-886733-90-2 LOC: 99-62044. p. 245

“ISOSWS Spectral Variations of Oxygen-Rich Miras”

Ostrowski, T. A.; Stencel, R. E.

1999 Precision CCD Photometry, ASP Conference Series, Vol. 189, Edited by Eric R. Craine, David L. Crawford, and Roy A. Tucker. ISBN: 1-58381-015-3 (1999), p.207

“Toward Precision Photometry of Red Variable Stars”

Klebe, Dimitri I.; Stencel, Robert E.; Theil, David S.

1998 SPIE Proc. Infrared Astronomical Instrumentation, Vol. 3354, p. 853ff. Edited by A. M. Fowler.

“TNTCAM MARK II: a new mid-IR array imager/polarimeter”

Helou, G.; Becklin, E. E.; Stencel, R. E.; Wilkes, B. J.

1997 Diffuse Infrared Radiation and the IRTS. ASP Conference Series; Vol. 124; 1997; ed. H. Okuda; T. Matsumoto; and T. Rolig, p.393ff.

“Preliminary results from ISO: US guaranteed time projects”

Meyer, Eric T.; Stencel, Robert E.; Bruns, Donald G.

1996 Proc. SPIE Vol. 2828, p. 463-471, Image Propagation through the Atmosphere, J. C. Dainty; Luc R. Bissonnette; Eds.

“New dual-aperture telescope for the Mt. Evans observatory”

Creech-Eakman, Michelle J.; Klebe, Dimitri I.; Stencel, Robert E.; Williams, W. John

1996 Proc. SPIE Vol. 2814, p. 115-120, Cryogenic Optical Systems and Instruments VII, Lawrence G. Burriesci; James B. Heaney; Eds.

“TGIRS: a two-grating (mid) infrared spectrometer”

Stencel, Robert E., presentation published as

1995 Astrophysics and Space Science, Volume 224, Issue 1-2, pp. 563-564

“Silicates in Evolved Stars: The LRS-Maser Chronology Revisited”

Stencel, Robert E.; Backman, Dana E., presentation published as

1995 Astrophysics and Space Science, Volume 224, Issue 1-2, pp. 401-404

“The Infrared Colors of Main Sequence Stars: How Much Circumstellar Debris is Normal?”

Stencel, Robert E.; Backman, Dana E., presentation published as

1994 Astrophysics and Space Science, vol. 212, nos. 1-2, p. 417-422

“Planetary system evolution and the VEGA stars: The potential for ESA's Infrared Space Observatory”

Stencel, Robert E.

1993 Astronomical Infrared Spectroscopy. Future Observational Directions. Conference held at the University of Calgary; Alberta; June 16-19; 1992. Editor; Sun Kwok; Publisher; Astronomical Society of the Pacific, Vol. 41; San Francisco; CA; 1993. LC # QB470.A1 A87 1992. ISBN # 0937707600., p.113ff.

“Additional Spectroscopic Discoveries Possible Among Late Type, Evolved Stars with ISO”

Additional presentations prior to DU/1993 can be retrieved using name search at:

http://adsabs.harvard.edu/abstract_service.html

3c. Additonal conference abstracts with Denver byline

Stencel, Robert E.; Hopkins, J. L.
American Astronomical Society, AAS Meeting #214, #431.02; Bulletin of the American Astronomical Society, Vol. 41, p.702.
“Pre-eclipse Observations, Epsilon Aurigae, 2009”

Hart, Alexa H.; van Belle, G. T.; Creech-Eakman, M. J.; Stencel, R. E.
American Astronomical Society, AAS Meeting #213, #491.17; Bulletin of the American Astronomical Society, Vol. 41, p.469; Bulletin of the American Astronomical Society, Vol. 41, p.469.
“Spectro-Interferometrically Resolved Angular Diameters of Giants and Supergiants”

Price, Aaron; De Pree, C.; Fortson, L.; French, R.; Hartman, M.; Jacoby, S.; Raddick, J.; Stencel, R.
American Astronomical Society, AAS Meeting #213, #465.01; Bulletin of the American Astronomical Society, Vol. 41, p.411; Bulletin of the American Astronomical Society, Vol. 41, p.411.
“Citizen Science for the International Year of Astronomy”

Price, Aaron; De Pree, C.; Fortson, L.; Hartman, M.; Jacoby, S.; Stencel, R.
American Astronomical Society, AAS Meeting #212, #35.02; Bulletin of the American Astronomical Society, Vol. 40, p.234
“Citizen Science for the International Year of Astronomy”

Stencel, Robert E.
American Astronomical Society, AAS Meeting #212, #14.03; Bulletin of the American Astronomical Society, Vol. 40, p.207
“Campaign Plans for, and Pre-eclipse Observations of the Extreme Star, Epsilon Aurigae”

Jacoby, Suzanne H.; Fortson, L.; Hartman, M.; Lochner, J. C.; Price, A.; Raddick, M. J.; Stencel, R. E.
American Astronomical Society, AAS Meeting #211, #106.08; Bulletin of the American Astronomical Society, Vol. 39, p.934
“Citizen Science for the International Year of Astronomy”

Hart, Alexa H.; Jurgenson, C. A.; Creech-Eakman, M. J.; Thompson, R. R.; Stencel, R. E.
American Astronomical Society, AAS Meeting #211, #57.16; Bulletin of the American Astronomical Society, Vol. 39, p.832
“Observations of Broad Emission Lines in Wolf-Rayet Winds with Long-Baseline Interferometry”

Stencel, Robert E.
American Astronomical Society Meeting 210, #75.04; Bulletin of the American Astronomical Society, Vol. 38, p.182
“Spitzer Spectra of Epsilon Aurigae - As It Nears Eclipse in 2009”

Mais, D. E.; Richards, D.; Stencel, R. E.
8 pages. Appeared in the Proceedings of the May 2006 Society for Astronomical Sciences annual conference - <http://adsabs.harvard.edu/abs/2007arXiv0704.2762M>
“Three Years of Mira Variable CCD Photometry: What Has Been Learned?”

Matson, Rachel A.; Stencel, R. E.
2007 AAS/AAPT Joint Meeting, American Astronomical Society Meeting 209, #93.01;
Bulletin of the American Astronomical Society, Vol. 38, p.1029.
“The Wilson-Bappu Effect Fifty Years Later”

Lucas, G. E.; Hopkins, J. L.; Stencel, R. E.
The Society for Astronomical Sciences 25th Annual Symposium on Telescope Science.
Held May 23-25, 2006, at Big Bear, CA. Published by the Society for Astronomical Sciences., p.25
“Long-Period Eclipsing Binary System Epsilon Aurigae Eclipse Campaign”

Hopkins, J. L.; Stencel, R. E.
The Society for Astronomical Sciences 25th Annual Symposium on Telescope Science.
Held May 23-25, 2006, at Big Bear, CA. Published by the Society for Astronomical Sciences., p.13
“Single Channel UBV and JH Band Photometry of Epsilon Aurigae”

Speck, A. K.; Ueta, T.; Stencel, R.; MIRIAD Collaboration
2005 American Astronomical Society Meeting 207, #182.15; Bulletin of the American Astronomical Society, Vol. 37, p.1465
“Spitzer/MIPS Infrared Imaging of the Extremely Extended Circumstellar Dust Shell of HD 161796”

Dahl, M.; Stencel, R. E.; Howell, S.
2005 American Astronomical Society Meeting 207, #68.11; Bulletin of the American Astronomical Society, Vol. 37, p.1268
“Search for transiting planets in NGC 6791 with milli-magnitude V+R photometry”

Hopkins, J.; Stencel, R. E.
2004 American Astronomical Society Meeting 205, #107.05; Bulletin of the American Astronomical Society, Vol. 36, p.1525
“Out-of Eclipse UBV Variations of epsilon Aurigae [F0Iap]”

Mais, D. E.; Stencel, R. E.; Richards, D.
2004 American Astronomical Society Meeting 205, #54.06; Bulletin of the American Astronomical Society, Vol. 36, p.1428
“Automated photometry, period analysis and flare-up constraints for selected Mira Variable Stars”

Jurgenson, C. A.; Stencel, R. E.; Stout, J.

2004 American Astronomical Society Meeting 205, #49.14; Bulletin of the American Astronomical Society, Vol. 36, p.1420

“Imaging Fourier Transform Spectro-polarimetry in the Infrared”

Chipps, K. A.; Stencel, R. E.; Mattei, J. A.

2004 The Journal of the American Association of Variable Star Observers, vol. 32, no. 1, pp. 1-8

“Discrete Fourier Analysis of the Light Curve of S Persei”

Mais, D. E.; Stencel, R. E.; Richards, D.

2004 The Society for Astronomical Sciences 23rd Annual Symposium on Telescope Science, held May 26-27, 2004, at Big Bear, CA. Published by the Society for Astronomical Sciences, 2004., p.71

“Mira Variable Stars: Spectroscopic and Photometric Monitoring of this Broad Class of Long Term Variable and Highly Evolved Stars-II”

Winter, B.; Howe, H. J.; Stencel, R. E.

2004 American Astronomical Society Meeting 204, #57.02; Bulletin of the American Astronomical Society, Vol. 36, p.763

“Nineteenth Century Origins of Denver Astronomy”

McNabb, I. A.; Stencel, R. E.

2004 American Astronomical Society Meeting 204, #45.02; Bulletin of the American Astronomical Society, Vol. 36, p.734

“2MASS and IRAS Discovery of Red Supergiant Stars in OB Star Associations”

Mais, D. E.; Stencel, R. E.

2004 American Astronomical Society Meeting 204, #35.04; Bulletin of the American Astronomical Society, Vol. 36, p.705

“Amateur Spectroscopy: What is Achievable from the Backyard?”

Jurgenson, C. A.; Stencel, R. E.

2004 American Astronomical Society Meeting 204, #10.05; Bulletin of the American Astronomical Society, Vol. 36, p.673

“Instrumentation Development for Mid-IR Imaging Spectro-polarimetry”

Mellon, R. R.; Scheld, D. L.; Stencel, R. E.

2004 American Astronomical Society Meeting 204, #10.02; Bulletin of the American Astronomical Society, Vol. 36, p.672

“Progress Report on the Student Astronomy Lab telescope at the University of Denver”

Mais, D. E.; Bhatia, A.; Stencel, R. E.; Richards, D.

2004 American Astronomical Society Meeting 204, #07.09; Bulletin of the American Astronomical Society, Vol. 36, p.786

“Precision Photometry of Long Period Variable Stars”

Stencel, R. E.

2003 American Astronomical Society Meeting 202, #10.14; Bulletin of the American Astronomical Society, Vol. 35, p.713

“Teaching a College Course on Light Pollution”

Stencel, Robert

2003 Effective Teaching and Learning of Astronomy, 25th meeting of the IAU, Special Session 4, 24-25 July, 2003 in Sydney, Australia, meeting.

“Teaching with Internet Telescopes: Some Lessons Learned”

Stencel, Robert; Jurgenson, Colby

2003 Astrophysics of Dust, Estes Park, Colorado, May 26 - 30, 2003. Edited by Adolf N. Witt.

“Circumstellar Aerosols: Interferometry and Spectro-polarimetry”

Ostrowski-Fukuda, T. A.; Stencel, R. E.; Kemball, A.; Harper, G.; Diamond, P. J.

2002 American Astronomical Society, 201st AAS Meeting, #115.09; Bulletin of the American Astronomical Society, Vol. 34, p.1291

“Movie and Description of the 43-GHz SiO Maser changes in S Persei”

Bisque, S.; Rice, M.; Stencel, R. E.

2002 American Astronomical Society, 200th AAS Meeting, #47.06; Bulletin of the American Astronomical Society, Vol. 34, p.719

”Paramount Tracking and Pointing Accuracy Plus Browser Control: As Applied in the Student Telescope Network and Beyond”

Stencel, R. E.; Harland, H. A.; Hannahoe, R.; Bisque, S. T. M. D.; Rice, M.

2002 American Astronomical Society, 200th AAS Meeting, #47.05; Bulletin of the American Astronomical Society, Vol. 34, p.719

“The Student Telescope Network (STN) Experiment”

Rice, M.; Bisque, S. T. M. D.; Stencel, R. E.

2002 American Astronomical Society, 200th AAS Meeting, #47.04; Bulletin of the American Astronomical Society, Vol. 34, p.718

”Hosting the Student Telescope Network First Site”

Jurgenson, C. A.; Stencel, R. E.; Ueta, T.

2002 American Astronomical Society, 200th AAS Meeting, #15.12; Bulletin of the American Astronomical Society, Vol. 34, p.666

“Mid-IR Polarimetry of Axi-Symmetric Mass Loss in the Shaping of Planetary Nebula NGC 7027”

Jurgenson, C. A.; Stencel, R. E.; Theil, D. S.

2001 American Astronomical Society, 199th AAS Meeting, #137.01; Bulletin of the American Astronomical Society, Vol. 33, p.1511

”Mid-IR Imaging and Polarimetry of Highly Evolved Objects

Stencel, R. E.; Phillips, A.; Jurgenson, C.; Ostrowski-Fukuda, T.
2001 American Astronomical Society, 199th AAS Meeting, #92.19; Bulletin of the
American Astronomical Society, Vol. 33, p.1443
"Efforts to Verify Micro-variability among HIPPARCOS-selected AGB Stars"

Ostrowski-Fukuda, T. A.; Kemball, A. J.; Stencel, R. E.
2001 American Astronomical Society, 199th AAS Meeting, #92.11; Bulletin of the
American Astronomical Society, Vol. 33, p.1442
"Detailed Monitoring of the 43-GHz SiO Maser Emission in S Per"

Jones, T. J.; Kelbe, D. I.; Creech-Eakman, M. J.; Stencel, R.
2001 American Astronomical Society, 199th AAS Meeting, #04.05; Bulletin of the
American Astronomical Society, Vol. 33, p.1306
"Deep Inside OMC2"

Theil, D. S.; Edwards, M. E.; Jurgenson, C. A.; Klebe, D. I.; Stencel, R. E.; Cash, J. L.;
Martin, R. T.; Johnson, P. E.; Weger, J. S.
2001 American Astronomical Society, 198th AAS Meeting, #05.06; Bulletin of the
American Astronomical Society, Vol. 33, p.791
"Early Results from TNTCAM2, a Mid-IR Imaging Polarimeter, and Remote Internet
Observing"

Edwards, Michael L.; Stencel, Robert E.
Astrophysical Ages and Times Scales, ASP Conference Series Vol. 245. Edited by Ted
von Hippel, Chris Simpson, and Nadine Manset. San Francisco: Astronomical Society of
the Pacific, ISBN: 1-58381-083-8, 2001., p.133
"Ages and Abundances Among β Pictoris Stars"

Stencel, R. E.; et al.
2000 HIPPARCOS and the Luminosity Calibration of the Nearer Stars, 24th meeting of
the IAU, Joint Discussion 13, August 2000, Manchester, England
"Hipparcos and Microvariability in Mira Variables: An Observational Attempt to
Confirm Same"

Fajardo-Acosta, S. B.; Backman, D. E.; Stencel, R. E.
2000 ISO Beyond Point Sources: Studies of Extended Infrared Emission, September 14-
17, 1999, ISO Data Centre, Villafranca del Castillo, Madrid, Spain. Edited by R. J.
Laureijs, K. Leech and M. F. Kessler, ESA-SP 455, 2000. p. 73.
"ISOPHOT Mapping of Vega-type Circumstellar Dust"

Stencel, Robert E.
2000 Asymmetrical Planetary Nebulae II: From Origins to Microstructures, ASP
Conference Series, Vol. 199. Edited by J. H. Kastner, N. Soker, and S. Rappaport. ISBN:
1-58381-026-9, 2000, p. 99ff.
"AGB Star Polar Breakout and the Origin of Aspherical Planetary Nebulae"

Stencel, R. E.; Theil, D.; Klebe, D.
1999 American Astronomical Society, 195th AAS Meeting, #87.16; Bulletin of the American Astronomical Society, Vol. 31, p.1504
"TNTCAM MARK II: First light Mid-IR Images"

Theil, David S.; Stencel, Robert E.; Klebe, Dimitri I.; Flaming, Dale; Belgum, Jack
1999 Proc. SPIE Vol. 3786, p. 376-383, Optomechanical Engineering and Vibration Control, Eddy A. Derby; Colin G. Gordon; Daniel Vukobratovich; Paul R. Yoder; Carl Zweben; Eds.
"Stepper motors at LHe temperatures in astronomical mid-infrared instrumentation"

Howe, H. J.; Stencel, R. E.; Fisher, S.
1999 American Astronomical Society, 194th AAS Meeting, #10.03; Bulletin of the American Astronomical Society, Vol. 31, p.840
"Denver's Pioneer Astronomer: Herbert Alonso Howe (1858-1926)"

Nelson, S. M.; Stencel, R. E.
1999 American Astronomical Society, 194th AAS Meeting, #10.02; Bulletin of the American Astronomical Society, Vol. 31, p.840
"The Search for Astronomical Alignments in the Seventh Century A.D. Silla Capital at Kyongju, Korea"

Stencel, R. E.; Meyer, E. T.
1999 American Astronomical Society, 194th AAS Meeting, #09.10; Bulletin of the American Astronomical Society, Vol. 31, p.838
"Performance of The Meyer Binocular Telescope at Mt.Evans Observatory"

Sudol, J. J.; Dyck, H. M.; Stencel, R. E.; Klebe, D. I.; Creech-Eakman, M. J.
1999 The Astronomical Journal, Volume 117, Issue 3, pp. 1609-1615.
"Mid-Infrared Visibility Measurements of Evolved Stars"

Fajardo-Acosta, S. B.; Stencel, R. E.; Backman, D. E.
1998 American Astronomical Society, 193rd AAS Meeting, #69.07; Bulletin of the American Astronomical Society, Vol. 30, p.1350
"ISO and Sub-mm Imaging of Dusty Disks Around Vega-type Stars"

Ostrowski, T. A.; Stencel, R. E.
1998 American Astronomical Society, 193rd AAS Meeting, #46.08; Bulletin of the American Astronomical Society, Vol. 30, p.1321
"CCD Photometry of Hipparacos Variable Stars"

Collins, W.; Stencel, R. E.
1998 American Astronomical Society, 193rd AAS Meeting, #34.09; Bulletin of the American Astronomical Society, Vol. 30, p.1294
"How to get to 17th Magnitude at Video Frame Rates"

Stencel, R. E.

1998 American Astronomical Society, 193rd AAS Meeting, #34.03; Bulletin of the American Astronomical Society, Vol. 30, p.1293

“High Altitude Observing: Some Lessons Learned”

Theil, D. S.; Klebe, D. I.; Stencel, R. E.

1998 American Astronomical Society, 193rd AAS Meeting, #12.03; Bulletin of the American Astronomical Society, Vol. 30, p.1268

“TNTCAM MARK II: A New Mid-IR Array Imager and Polarimeter”

Mellon, R. R.; Scheld, D.; Stencel, R. E.

1998 American Astronomical Society, 193rd AAS Meeting, #11.04; Bulletin of the American Astronomical Society, Vol. 30, p.1264

“Daytime Polar Alignment of Telescope Mountings Using GPS and Internal Reference Optics”

Thakur, N.; Fajardo-Acosta, S. B.; Stencel, R. E.; Backman, D. E.

1997 American Astronomical Society, 191st AAS Meeting, #47.13; Bulletin of the American Astronomical Society, Vol. 29, p.1287

“ISO Spectral Energy Distributions for Vega-type Stars”

Stencel, R. E.

1997 American Astronomical Society, 191st AAS Meeting, #41.17; Bulletin of the American Astronomical Society, Vol. 29, p.1272

“First Light Achieved at the new Mt.Evans High Altitude Observatory”

Nelson, S.; Stencel, R. E.

1997 American Astronomical Society, 191st AAS Meeting, #38.03; Bulletin of the American Astronomical Society, Vol. 29, p.1264

“Astronomical Alignments in a Neolithic Chinese Site?”

Klebe, D. I.; Stencel, R. E.; Theil, D.

1997 American Astronomical Society, 191st AAS Meeting, #09.09; Bulletin of the American Astronomical Society, Vol. 29, p.1224

“TNTCAM MARK II: A New Mid-IR Array Imager/Polarimeter”

Fajardo-Acosta, S. B.; Stencel, R. E.; Backman, D. E.

1996 Bull. Am. Astron. Soc., Vol. 28, No. 4, p. 1300 – 1301.

“Infrared Space Observatory mapping of 60 μm dust emission around Vega-type systems”

Stencel, R. E.; Creech-Eakman, M. J.; Klebe, D. I.; Williams, W. J.

1996 American Astronomical Society, 189th AAS Meeting, #75.05; Bulletin of the American Astronomical Society, Vol. 28, p.1370

“First Light Report on TGIRS - DU's New mid-IR Spectrometer”

Creech-Eakman, M. J.; Stencel, R. E.
1996 American Astronomical Society, 189th AAS Meeting, #63.03; Bulletin of the American Astronomical Society, Vol. 28, p.1352
“Monitoring of the Mid-Infrared Silicate Features of Long Period Variable Stars”

Creech-Eakman, M. J.; Stencel, R. E.
1996 American Astronomical Society, 189th AAS Meeting, #30.03; Bulletin of the American Astronomical Society, Vol. 28, p.1311
“The Internet as a Tool for Astronomy Homework - Conucopia or Curse?”

Fajardo-Acosta, S. B.; Stencel, R. E.; Backman, D. E.
1996 American Astronomical Society, 189th AAS Meeting, #19.10; Bulletin of the American Astronomical Society, Vol. 28, p.1300
“Infrared Space Observatory Mapping of 60 MU M Dust Emission Around Vega-type Systems”

Howell, R. R.; Klassen, D. R.; Klebe, D.; Stencel, R. E.; Creech-Eakman, M. J.
1996 American Astronomical Society, DPS meeting #28, #23.04; Bulletin of the American Astronomical Society, Vol. 28, p.1152
“Ground-based 10-micron Observations of Hotspots on Io”

Orton, G.; Fisher, B.; Ortiz, J. L.; Yanamandra-Fisher, P.; Rages, K.; Howell, R.; Klebe, D.; Stencel, R.; Drossart, P.; Lecacheux, J.; and 19 coauthors
1996 American Astronomical Society, DPS meeting #28, #21.18; Bulletin of the American Astronomical Society, Vol. 28, p.1137
“Characterization of Jupiter's Atmosphere from Galileo and Earth-Based Observations During the Ganymede-1 and Ganymede-2 Orbit Encounters”

Creech-Eakman, M. J.; Klebe, D. I.; Stencel, R. E.; Williams, W. J.
1996 American Astronomical Society, 188th AAS Meeting, #85.06; Bulletin of the American Astronomical Society, Vol. 28, p.962
“TGIRS - A New Two-Grating Mid-Infrared Spectrometer”

Stencel, R. E.; Creech-Eakman, M. J.
1996 American Astronomical Society, 188th AAS Meeting, #72.02; Bulletin of the American Astronomical Society, Vol. 28, p.943
“Mid-Infrared Silicate Variation in Long Period Variable Stars”

Stencel, R. E.; Backman, D. E.
1996 American Astronomical Society, 188th AAS Meeting, #52.09; Bulletin of the American Astronomical Society, Vol. 28, p.902
“The Birth and Death of Planetary Systems”

Montgomery, G. E.; Stencel, R. E.
1996 Bull. Am. Astron. Soc., Vol. 28, No. 3, p. 1194

“HAO II - a large telescope for the extreme high altitude site at Mt. Evans, Colorado”

Jalakas, M.; Stencel, R. E.; Carpenter, K. G.; Robinson, R. D.
1994 American Astronomical Society, 185th AAS Meeting, #21.11; Bulletin of the
American Astronomical Society, Vol. 26, p.1345
“GHRs and IUE Observations of the Symbiotic Binary star CI Cygni”

Stencel, R. E.; Dahm, M. A.; Jalakas, M.; Klebe, D.; Emerson, G.; Butenhoff, C.;
Gehrz, R. D.
1994 American Astronomical Society, 185th AAS Meeting, #10.04; Bulletin of the
American Astronomical Society, Vol. 26, p.1321
“Sky Brightness & Acoustic Soundings, Mt.Evans Observatory”

Creech-Eakman, M.; Stencel, R. E.; Klebe, D.; Williams, J.
1994 American Astronomical Society, 184th AAS Meeting, #55.01; Bulletin of the
American Astronomical Society, Vol. 26, p.948
“10 Micron region Spectra of Long Period Variables”

Mack, J.; Stencel, R. E.; Klebe, D.; Sullivan, P.; Dirks, C.; Williams, J.; Emerson, G.;
Meyer, E.
1994 American Astronomical Society, 184th AAS Meeting, #26.07; Bulletin of the
American Astronomical Society, Vol. 26, p.895
“The Mount Evans Observatory -- Site Survey Update”

Stencel, R. E.; Backman, D. E.
1994 American Astronomical Society, 184th AAS Meeting, #16.09; Bulletin of the
American Astronomical Society, Vol. 26, p.884
“ISO-NASA Key Project: The Birth and Death of Planetary Systems”

Klebe, D.; Mack, J.; Wiese, K.; Williams, J.; Stencel, R.
1992 American Astronomical Society, 181st AAS Meeting, #74.11; Bulletin of the
American Astronomical Society, Vol. 24, p.1240
“Mount Evans Observatory: Infrared Spectroradiometric Observations and Site Survey
Results”

Additional papers prior to 1993 can be retrieved using name search at:
http://adsabs.harvard.edu/abstract_service.html

3d. Additional invited talks and presentations

2020 Pandemic limited all in-person gatherings after March 11th.
2020 March 4: Hosted premier showing of Neil deGrasse Tyson’s newest COSMOS
series, at DMNS IMAX theater, N = 500+.

2018 DMNS Young Professionals group, August 8, 2018.

Hosted 45 members of DMNS young professionals group at DU's historic Chamberlin Observatory for talks and telescope use.

2018 July DU VIP high school students, Present talks about space and astronomy to 80 local STEM students as part of the DU VIP liaison with local high schools. Lindsey Aud.

2018 Jan 31 - Rocky Mountain School of Expeditionary Learning, Denver, Guest Speaker, Denver, Guest lecture on current space topics, plus addressing light pollution solutions per student requests.

2018 Jan 30 - eclipse interviews, Denver TV9 & KOSI radio, Denver, Colorado,

4 Jan 2017 – meeting of the Historical Astronomy Division steering committee during the American Astronomical Society meeting, Dallas TX

2017 – Co-hosted public Open House nights along with Denver Astro Society at DU's historic Chamberlin Observatory on 10 Sep (special guest Dean Regas, Cinci Obs), 8 Oct (gave special talk about observatory history), 5 Nov and 3 Dec 2016 plus 7 Jan, 4 Feb, 4 Mar. 1, Apr, 6 May, 3 Jun, 15 & 29 Jul and 26 Aug 2017.

Apr, 6 May, 3 Jun, 15 & 29 Jul and 26 Aug 2017.

21 Sept. 2017 - STEM Academy students, N=50, outreach at Chamberlin Obs.

22 Sept 2017 - DU Student Physics Society students at Mount Evans Observatory, 4 hours, N=15.

11 Oct 2017 - hosted annual Howe lecture by Dr. Harold Levison, SWRI.

13 Oct 2017 - hosted CU alumni group at Chamberlin Obs, N = 20

18 Oct 2017 - invited talk, Dept cosmic ray mini-symposium, topic: astronomy and astrophysics based atop Mount Evans.

9 Sep 2016 – Discoveries trip, FSEM, Echo Lake and Idaho Springs

20 Sep 2016 – hosted Univ Park Community Council gathering at DU's historic Chamberlin Observatory

Fall 2016, winter & spring 2017 – mentored 7 MEPS engineering students – Senior Design Project in renewable energy.

21 Oct 2016 – hosted 12 DU Society of Physics Students for an evening with telescopes at Echo Lake, High Altitude Lab/Field Station.

4 Dec 2016 – hosted Univ Park Community Council's holiday party at DU's historic Chamberlin Observatory, telescope use, approx 250 persons over several hours.

13 Dec 2016 – met with representatives of US Air Force Academy endowment committee regarding updates for the USAFA planetarium and observatory facilities.

27 Sept 2015 – Lunar Eclipse Event, Program Organizer, Hosted approximately 1,000 members of the public at DU's historic Chamberlin Observatory for guided viewing of the total lunar eclipse on the evening of Sunday Sept 27, 2015. Nearly 400 persons enjoyed using the large telescope, while the balance made use of auxiliary portable telescopes set out in Observatory Park, courtesy of astronomy club

See above.

15 July 2015 – DU Bridge Project Students, Astronomy program hosting at DU's historic Chamberlin Observatory, Coordinated observatory daytime visit by, and program for, 80 middle/high school level summer students in the DU Bridge Project. Students participated in solar studies, learned about telescopes, viewed crescent planet Venus and

watched informational videos during morning-long visits. DU grad students K.Geise, R.Pearson, T.Wolfe assisted.

15 June 2015 – Denver East High School astronomy night event, Successful event, approx 30 STEM student contacts.

Jan/Feb 2015 – Denver Metro Science Fair (Intel), Member of Scientific Review committee, Denver, January 15, 2015 - February 15, 2015. Review of upwards of 450 science fair applicant packets prior to the 2015 Denver Region Metro Science Fair, (Feb.25). Examination of applications for content and completeness, re-categorization, contact for updates, etc.

20 Feb 2014 – invited talk, Lakewood Rotary club, N=24.

11 Apr 2014 – hosted Kids First Foundation group at DU's historic Chamberlin Observatory, N=15.

4 May 2014 – hosted Univ Park home tour activity at DU's historic Chamberlin Observatory, N=300.

10 May 2014 – invited talk, Phi Beta Kappa chapter of Colorado, N=24.

21 Sep 2013 – <http://www.headenver.org/> star talk and telescope tour for youth group. N~30

10 Nov 2013 – star talk and telescope sharing, Tesoro Foundation program, Fort Restaurant, Morrison. N~45.

1 Dec 2013 – hosting Univ. Park community holiday party at Chamberlin Obs, N ~200.

12 Aug 2012 – Invited talk, Citizen Sky Workshop, Adler Planetarium Chicago, Epsilon Aurigae: pre eclipse observations and campaign plans.

17 July 2012 – Contributed talk, Gemini Science Meeting 2012, Gemini Observatory, San Francisco, GNIRS observations of isotopic CO in epsilon Aurigae, Workshop, International.

4 July 2012 – Invited talk, XIIth Hvar Observatory Symposium, Hvar Observatory, Croatia, Results of the epsilon Aurigae eclipse campaign, International Conference, Published in Proceedings. Presenter/Author: Robert E. Stencel

23 May 2011 – Author and co-author of papers presented at AAS Boston 218: 225.04, Boston, Discovery Of Strong Helium 10830A Absorption In The Mideclipse Epsilon Aurigae, R.Stencel et al. <http://adsabs.harvard.edu/abs/2011AAS...21822504S>

Towards A Full Orbital Solution For Epsilon Aurigae, P.Hemenway et al., <http://adsabs.harvard.edu/abs/2011AAS...21823005K>

Disk accretion in the Disk of epsilon Aurigae: Results of Monte Carlo Radiative Transfer Models, N.Pequette et al. <http://adsabs.harvard.edu/abs/2011AAS...21822505P>

11 Jan 2011 – Organized and hosted a special session at AAS meeting, Seattle, Boston, Emerging Results on the Extreme Binary, epsilon Aurigae. 10 speakers plus poster session, with support from an NSF conference travel grant:

Stencel et al. <https://ui.adsabs.harvard.edu/abs/2011AAS...21725709S/abstract>

Seebode et al. <https://ui.adsabs.harvard.edu/abs/2011AAS...21725708S/abstract>

Howell et al. <https://ui.adsabs.harvard.edu/abs/2011AAS...21725707H/abstract>

Leadbeater et al. <https://ui.adsabs.harvard.edu/abs/2011AAS...21725707H/abstract>
Kloppenborg et al. <https://ui.adsabs.harvard.edu/abs/2011AAS...21725703K/abstract>
Clover et al. <https://ui.adsabs.harvard.edu/abs/2011AAS...21725702C/abstract>
Hopkins et al. <https://ui.adsabs.harvard.edu/abs/2011AAS...21725701H/abstract>
Stencel, R. <https://ui.adsabs.harvard.edu/abs/2011AAS...21722405S/abstract>
Kloppenborg et al. <https://ui.adsabs.harvard.edu/abs/2011AAS...21715812K/abstract>
Turner et al. <https://ui.adsabs.harvard.edu/abs/2011AAS...21715811T/abstract>

3-5 Sept 2010 – invited talk and poster presentation during AAVSO Citizen Science 2nd workshop at the California Academy of Sciences, N ~ 50,
<https://www.aavso.org/citizen-sky-workshops#second>

5 Aug. 2009 – Citizen Sky Workshop, Adler Planetarium Chicago, August 4-7.
“Epsilon Aurigae: pre-eclipse observations and campaign plans” N~35,
<https://www.aavso.org/citizen-sky-workshops#first>

22 Oct. 2008 – “The Circumstellar Interstellar Boundary around evolved stars – Revealed” Colloquium presented to the Infrared Group at the Institute for Astronomy and Space Astronautics, Sagamihara Japan.

21 Oct. 2008 – Epsilon Aurigae’s first eclipse of the Millennium - Colloquium presented at the National Astronomical Observatory Japan (HQ, Mitaka).

4 Oct. 2008 – University of Denver Observatories and the 400th anniversary of the telescope - Lecture presented at the DU Alumni Symposium, Sturm 451.

Jun. 3, 2008 – Astronomers predict nearby stellar fireworks by mid-century - Press conference, American Astronomical Society national meeting, St. Louis, MO.

Jan. 19, 2008 – The First Stars - invited talk given to the Longmont Astronomical Society. N = 36.

22 May 2007 – Lecture to US Forest Service, Clear Creek Ranger District, History of Research Atop Mt. Evans.

10 Mar. 2007 – Invited talk, Internet Telescopes and Educational Opportunities - to the Colorado-Wyoming section of the American Association of Physics Teachers, Auraria campus meeting.

28 Oct. 28 2006 – Lecture at Denver Museum of Nature and Science, Infrared Astronomy.

26 Sep. 2006 – Lecture to the Colorado Springs Astronomical Society, Light Pollution status in Colorado.

23 Aug. 2006 – Invited talk, IAU Symposium 240: Evidence for a Precessing Disk in the Extreme Binary epsilon Aurigae - Prague, Czech Republic.

17 Aug. 2006 – Innovation in Teaching/Learning Astronomy Methods, 26th meeting of the IAU, Special Session 2, 17-18 August, 2006 in Prague, Czech Republic:
“Educational Opportunities in Pro-Am Collaboration”

4 Mar. 2006 – Backyard Astrophysics - a presentation to high school science teachers at the Denver Museum of Nature and Science, 35 participants.

26 Jan. 2006 – Potential Synergies between the DUSEL Henderson Mine project and DU's Mt. Evans Observatory - presented to the Henderson Project multi-university consortium meeting on DU campus.

17 Oct. 2005 – Colloquium at Dept. Phys., Colo School of Mines, Tracing the mass loss histories in extremely large circumstellar shells of evolved stars.

16 Sep. 2005 – IDA/Lake Yellowstone Conference on Light Pollution, Mt.Evans-based monitoring of metro Denver since 1994.

24 May 2005 – The history of the DU High Altitude Lab - talk given to the USFS Clear Creek Ranger District staff, 15 persons.

6 May 2005 – The Origin of the Elements - talk given to Bill Koch's physics for lunch group, DU, 15 persons.

17 Sep. 2004 – The Vanishing Colorado Night Sky - talk given to Summit County Citizens Dark Sky Forum, Frisco community center. 50 persons.

27 Sep. 2003 – History of Astronomy at the University of Denver - invited talk to the Antique Telescope Society national convention, Denver, N = 30.

24 Jul. 2003 – Teaching with Internet Telescopes: Some Lessons Learned - Effective Teaching and Learning of Astronomy, 25th meeting of the IAU, Special Session 4, 24-25 July, 2003 in Sydney, Australia.

Jul. 22, 2003: International Astronomical Union Science Division 5 colloquium, Sydney Australia, invited talk - Photometry of Micro-variables.

21 Nov. 2002 – Denver Museum of Nature and Science, Ricketson Auditorium, invited talk on Light Pollution: How and Why - as part of daylong, City of Denver sponsored symposium on the issue. N = 100.

13 Nov. 2002 – University of Texas at Arlington, Dept. Physics, Colloquium entitled Aerosols in Astrophysics. N = 30.

7 Sept. 2002 – The Mt.Evans Observatory 2002 Observing Season – Results - invited talk at Grand Mesa star party, Western Colorado Astronomy Club. N = 45.

1 Aug. 2002 – Invited talk to the Astronomical League national meeting in Salt Lake City The University of Denver Mt.Evans Guest Observer Program.

24 Apr. 2002 – South American Observatories - DU P&A Dept. Colloquium

22 Feb. 2002 – Modern Telescopes - invited talk to Denver Astronomical Society

3 Oct. 2001 – Astronomy at DU - invited talk at Pomona High School, Arvada.

15 Sept. 2001 – What's Happening in Astronomy - invited talk at Grand Mesa star party, Western Colorado Astronomy Club.

11 May 11, 2001: Portraits of the Astronomer as a Young Man: The University of Denver Don Menzel Archives – poster talk presented at the Donald H. Menzel Centennial Symposium, Harvard University Center for Astrophysics.

1 May 1, 2001: Colorado Astronomy - evening lecture presented to the Western Colorado Astronomy club, Mesa State University, Grand Junction

3 Feb.3, 2001: Ages and Abundances among beta Pictoris type Stars – poster/talk with M.Edwards, 2001 Astrophysical Ages conference, Hilo, HI.

31 Oct. 2000 – Colloquium, Physics Dept., Colo School of Mines - Recent Events at Mt.Evans Observatory.
24 Oct. 2000 – VIVA seniors program talk - Telescopes of Colorado.
2 Mar. 2000 – "DU's Meyer Womble Observatory" Invited talk to the Northern Colorado Astronomical Society, 3/2/2000 at Fort Collins Discovery Center.

Nov. 1999 – "Reflections on Archaeoastronomy" -- Provost quarterly luncheon talk, invited and scheduled for May 1999 but postponed to autumn (Nov.1999).
20 Nov. 1999 – "Interplanetary Travel" Panel Moderator at Colorado Book Fair program, Denver. Panel included Robert Zubrin and Bruce Jakowski.
9 Oct. 9, 1999 – "Metropolitan Light Pollution as seen from Mt.Evans Observatory" Invited talk, International Dark Sky Association regional meeting, Denver.

30 Sept. 1998 – "High Altitude Observing: Some Lessons Learned" Colloquium presented to the DU Dept. Physics & Astronomy, Olin 105.
20 June 1998 – Presented at American Association of Variable Star Observers national meeting in Boulder, CO "Developments at DU's Mt.Evans Observatory"
April 1998 – "Hot Topics in Astrophysics" -- series of three talks given to the Humanities Institute Salon series hosted by BoT member Marion Gottesfeld.

22 Aug. 1997 – "Developments at Mt.Evans Observatory" - invited talk to Rocky Mtn Space Grant Consortium meeting at DU Phipps mansion.
29 June 1997 – "Recent Advances in Astronomy and Astrophysics", annual invited talk given at the Rocky Mountain Star Stare event, near Colo.Springs (50+).
Jan. 1997 – Invited to chair session at AAS meeting, Toronto.

9 Oct. 1996 – Dept. Colloquium "A Biased View of Astronomy at DU"
4 Oct. 1996 – Southwest Research Inst.-Boulder "Mt.Evans Developments"
13 July 1996 – "Recent Advances in Astronomy and Astrophysics", annual invited talk given at the Rocky Mountain Star Stare event, near Colo. Springs (N=50+).
24 June 1996 – invited talk to Penrose Library staff on Astronomy program.
12 June 1996 – invited talk, American Astronomical Society, Madison "The Birth and Death of Planetary Systems -- ISO Key Project"
24 April 1996 – Departmental Colloquium at DU "First Results from the Infrared Space Observatory"
11 April 1996 – Humanities Lecture Series at DU "The Multi-cultural lure of Astronomy"

29 Jul. 1995 – "Developments in Astronomy" talk presented at the Star Stare astronomy gathering, Tarryall Flats, Colorado (50+ persons).
6 Jun. 1995 – "TNTCAM: A new infrared array camera for the 10 and 20 micron region", poster talk presented with Dimitri Klebe and Mary Dahm at the Interstellar Polarimetry meeting, Troy NY.

12 May 1995 – "Mt.Evans Observatory Infrared Spectra of the Comet-Jupiter Collision Events of July 1994", poster talk presented with Jessica Reynolds at the IAU Colloquium on the Comet-Jupiter Event, Baltimore, MD.

14 Apr. 1995 – "The Search for Planet X" talk presented at the Denver Astronomical Society (N=50+).

10 Dec. 1994 – "Front Range Astronomy" talk presented to the Longmont Astronomical Society (N=40+).

6 Dec. 1994 – "Infrared Astronomy on Mt.Evans" talk presented to the Denver Area Physics Teachers meeting (N=20+).

28 Oct. 1994 – "Astronomy at the University of Denver" talk given to the Physics Freshman Seminar (N=8).

24 Sep. 1994 – "The DU Observatory Proposal for Mt.Evans" talk given at Marshdale, CO for the Sierra Club (N=25+).

4 Aug. 1994 – "Comet SL9 hits Jupiter: DU Results" talk given at Evergreen, CO for the Evergreen Audubon Society (N=75+), plus field trip to Mt.Evans Observatory, Aug. 6, 1994 (N=35+).

23 Jul. 1994 – "Comet SL9 hits Jupiter: DU Results" talk given at the Gates Planetarium/Denver Museum of Natural History. N= 75.

3e. Popular Articles:

"Stellar Enigma Solved – After 200 years of mystery, Epsilon Aurigae is surrendering its secrets to an organized professional-amateur campaign", SKY & TELESCOPE magazine, March 2012, Pages: 18-28, Regional. Author: Robert E. Stencel

"Epsilon Aurigae - watching history and evolution unfold" feature article, Sky & Telescope magazine, 2009 May, pages 58-62.

(Full bibliography available, including 500+ pub. available at website:

http://adsabs.harvard.edu/abstract_service.html search on name: stencel, robert)

C. Service

1. Service to the Department, Division and University, 1994-2021

Dept. Committees – Undergraduate, Graduate and special committees for hiring, promotion and tenure

Search committees – Balzar, Ueta, Zink, Hoffman, Pufall, Cisneros, etc.

SPS mentorship

NSM Faculty Committee

NSM Tenure and Promotion

NSM PinS

Faculty Senate

Public Good committee

An unusual accomplishment of mine as a faculty member, was the creation of a modest DU endowed fund for astronomy staffing, at our historic Chamberlin Observatory, established and BoT endorsed circa 2015 as fund #42192. This came about as a result of years worth of soliciting donations for the future of the old observatory.

2. Service to the Community

Chamberlin Observatory public outreach, 1994-2021

Salons, alumni symposium public talks, 1994-2021

Refereeing (ongoing):

National Science Foundation proposal reviews

Reviewer, Telescope time allocation panels: NASA Spitzer Space Tel., Subaru Tel., Hubble Space Tel., James Webb Space Tel. And others.

Reviewer for Astrophysical Journal, Astronomy & Astrophysics (European), Former Soviet Union papers and scientific proposals

Reviewer for National Young Astronomer Award proposals [Astronomical League]

Chairman, Space Infrared Telescope Facility [SIRTF] Fellowship review panel, Caltech, Dec. 16-17, 2002

3. Service and the Public Good

Judge, National Young Astronomer Award competition, annually 1999-2015.

References:

– Students - Michelle Creech-Eakman, Colby Jurgenson, Kathy Geise, Richard Pearson, Brian Kloppenborg, Justus Gibson, Caroline Leach, Jeff Stout, Matt Dahl, Therese Fukuda, Matti Jalakas.

– Faculty –

Karen Bjorkman (U Toldeo), Angela Speck (U Texas – Austin), Wendy Hagen Bauer (Wellesley College, ret.), Karel Van der Hucht (Utrecht U), Gerard van Belle (Lowell Observatory), Edward Guinan (Villanova U), William Ketzeback (Apache Point Obs.),

Tom Geballe (Gemini Obs.), John Barentine (Dark Sky Association), Steve Howell (NASA-ARC & Gemini).

Sample Observing and Grant Awards

Spitzer Cycle 2	P.I./Epsilon Aurigae	\$18,135.	NASA
Spitzer Cycle 2 Co.I share/MIRIAD[A.Speck]		\$20,475.	NASA
Toyota IDEA grant, Internet Telescopes,		\$15,000.	Toyota
NSF MRI, TNTCAM2,		\$503,000.	NSF
JPL Infrared Space Telescope, Disks,		\$610,000.	JPL

Recent Invited Research Talks

Colloquia, Colorado School of Mines, Univ.Texas - Arlington, Infrared Astronomy Talks on Mt. Evans Research History, US Forest Service, Idaho Springs, CO

Ongoing research & outreach

With the construction of Mt.Evans observatory and the new Student Astronomy Lab on the DU campus, facilities for routine monitoring of long period variable stars was begun, along with allied training and related research. One of the graduate level efforts involved construction of a mid-infrared FTS polarimeter, as described in recent papers given at national conferences. Adventures in interferometry were initiated, culminating in a number of journal reports.

Foremost among outreach activities are public programs conducted at our campus observatory, reaching typically 5,000 guests per year (pre-pandemic), in collaboration with the Denver Astronomical Society. Contacts with regional high schools and astronomy clubs were maintained assiduously. I also served as DU coordinator for internet telescope access for students of all levels, made possible by the Tzec Maun Foundation, a grant from Toyota Foundation, and hosted at New Mexico Skies, Inc. This was an outgrowth of our very successful Student Telescope Network project started in 2002.

Example research abstracts:

Circumstellar Aerosols: Interferometry and Spectro-polarimetry

Stencel, R. and Jurgenson, C. 2003 Astrophysics of Dust conference, Estes Park,

<https://ui.adsabs.harvard.edu/abs/2003asdu.confE.104S/abstract> .

Analysis of the production and dispersal of solids in the atmospheres of evolved stars benefits from high spatial, spectral and polarimetric resolution. We present recent results [S Persei and NGC 7027] and outline instrumentation opportunities in spectro-polarimetry. The red supergiant, S Persei, has been shown to exhibit a clumped outflow at the ~ 8 mas scale, via VLBA monitoring observations in 43 GHz SiO ($v=1, J=1-0$) maser emission (Ostrowski-Fukuda et al. 2003 AAS meeting 201, poster 115 .

Independent K band interferometry (PTI group, Creech-Eakman and Thompson, private comm.) obtained a limb darkened diameter for S Per of 5 mas. These facts combined suggest that the masers constitute a standing wave phenomenon associated with rapid particle formation at 2 stellar radii. The planetary nebula, NGC 7027, is composed of a spheroidal core ionized region, surrounded by a ring-like photo-dissociation region, and extended hourglass nebulosity. Recently, Jurgenson et al (2003 ApJ) obtained mid-infrared narrow band polarimetry, revealing systematic differences between PAH

emission and dust continuum behavior, varying spatially across the nebula. These differences are suggestive of changes in particle size and orientation. To exploit the ensemble of discovery made possible with these methods, we are designing and plan to build a mid-infrared spectro-polarimeter [Spectro-polarimetric Imaging - Fourier Transforms for the InfraRed, SIFTIR, <https://ui.adsabs.harvard.edu/abs/2005hris.conf...92J/abstract>].

Ongoing educational research:

As educator, my role is to stimulate student interest in astronomy, science and math. Getting students to telescopes is a multi-culturally effective way to achieve this end. In addition to public programs and outreach at our school observatories, modern tools based on the internet offer great potential. One example is our effort at internet based observing, as in the following paper:

The Student Telescope Network [June 2002 AAS Albuquerque meeting, <https://ui.adsabs.harvard.edu/abs/2002AAS...200.4705S/abstract>] Several factors make observational astronomy difficult for pre-college students and teachers. (1) not many schools have teachers trained to use and maintain astronomy equipment; (2) school usually happens during the day and observing normally is a night-time activity; (3) the scourge of light pollution has hidden the stars from many students living in or near cities; (4) there is a general lack of access to expertise when needed. In addition, physically disabled students cannot climb ladders to simply access the telescope eyepiece. Internet access to computer-controlled telescopes equipped with digital cameras can solve many of these difficulties. This enables students and their teachers to access well-maintained internet-controllable telescopes in dark-site locations and to consult more readily with experts. We present the results of technical solutions to internet-control of telescopes, by Software Bisque, the New Mexico Skies guest observatory and the Youth Astronomy Committee of the Astronomical League in collaboration with Denver University Astronomy. We jointly proposed to the Institute for Connecting Science Research to the Classroom, and conducted a pilot program allowing high school students to access a CCD-equipped, accurately-pointing and tracking telescope, controllable over the Web, with a user-friendly skymap browser tool. With suitably placed telescopes worldwide, observing from the classroom in daylight will become feasible, as we have demonstrated with Australian and Eurasian student users of the New Mexico Skies internet telescope. In this and related posters, we report on a three month pilot project exploring this solution, conducted Feb-May 2002. User interest proved phenomenal, while user statistics proved diverse and there were distinct lessons learned about how to enhance student participation in the research process. We thank the Institute for Connecting Science Research to the Classroom, for a grant to the University of Denver in partial support of this effort, and acknowledge in-kind support from the estate of William Herschel Womble. Details at website www.du.edu/~rstencil/stn.htm

Ongoing Light Pollution research:

In my role as Colorado coordinator for the International Darksky Association [IDA], I seek every opportunity to raise awareness about the light pollution issues [glare, trespass and skyglow]. This has included talks at workshops and starparties, serving on

stakeholder panels for Denver lighting code revisions, promoting relevant state law, and other outreach. A published example includes an AAS abstract [June 2003 meeting, Nashville]:

TEACHING A COLLEGE COURSE ON LIGHT POLLUTION

<https://ui.adsabs.harvard.edu/abs/2003AAS...202.1014S/abstract>

Most introductory astronomy classes mention light pollution as a problem for observers of the night sky. cursory coverage leaves students with an acquaintance of the problem, but they are rarely taught to recognize and deal with the practical aspects of energy waste, glare, trespass and choice of alternative lighting fixtures. Recently, I ran a 10 week Honors seminar at the University of Denver entitled “Environmental and Social Consequences of Artificial Light” during winter term, 2003, which attracted a variety of arts, humanities and business majors. The course was facilitated greatly by the suite of online materials available at the International Darksky Association [IDA] website [www.darksky.org/resources/library.html], including the Lighting Code Handbook plus access to international, national and local lighting regulations and legislation. The students were assigned to review and summarize self-selected items by state, and present written summaries for in-class discussion purposes. We also had a guest lecture by a local IDA activist, Nancy Clanton, and considered involving other speakers from local CPTED and Planning departments. Slide mounted transparent diffraction gratings were distributed to help students observe spectra from different types of lights at night. After the students learned what the problems are, and the basic remedies, student-driven inquiry lead to a number of fascinating questions that I hope will help them to remain aware and active in this arena. Details are posted at my website [www.du.edu/~rstencil] but some of the key points include: (1) To whom does the night sky belong? Are economic interests sufficient to justify invasion of one’s dark space? (2) Do we accept disruption of our circadian rhythms in the name of ‘progress’, even if research now suggests linkage between melatonin problems and excessive levels of artificial lighting at night? (3) Does the loss of access to viewing the Milky Way pose risks to the imagination of younger generations? (4) Just because lighting is amenable to engineering solutions, does it merit attention in comparison with other pressing problems of our time? In my opinion, the recent flurry of better lighting regulation is not enough, and dark skies will continue to be degraded, if we cannot convince our younger citizens of the need for vigilance and activism on this issue. Please contact the author for any assistance needed in starting, or experiences related to, similar classes. My thanks to the estate of William Herschel Womble, IDA and Ms. Clanton, for support that made this class possible.

Ongoing historical research:

HISTORICAL AND ARCHAEOASTRONOMY PAPERS:

During the 1990s, I was responsible for reconstruction of the University’s observatories, which included rehabilitation of historic Chamberlain Observatory, and rebuilding the high altitude Mt. Evans observatory, the latter including Environmental Impact process before construction could begin (1995) and first light with the new telescope (1997). This being largely completed, I am returning to astrophysics research on evolved stars and interacting binary stars.

However, given the rich history at Denver University (H.Howe and D.Menzel), there is much to be done in documenting and publishing archival material available here. Some recent works have included the following. The archaeo-astronomy aspect was begun as a sidelight while a grad student, and pursued from time to time in support of liberal arts astronomy classes.

Key result: a book printed in 2004: “Denver’s Pioneer Astronomer: Herbert Alonso Howe”, by H.J.Howe and R.E.Stencel (600 page draft based on the Howe diaries). In parallel, and with financial assistance from Glenn Montgomery, a booklet called “Denver’s Great Telescope” was written by my daughter Claire and myself, that provides a definitive insight into the story of DU’s historic Chamberlin Observatory. A second edition was printed in 2015, adding crucial new information for reference about modern repairs and restoration of the telescope and its optics.

“Portraits of the Astronomer as a Young Man -- New and Re-examined Menzel Evidence from the Denver University Archives”

Robert Stencel, Allyssa Phillips and Stephen Fisher, University of Denver

Poster (unpublished) presented at Menzel Centennial, Harvard, May 2001

(Compilation of archival writings, photos and referential materials; Menzel was a native of Florence, CO and attended East High, Denver and then Denver U prior to astronomy career moves to Princeton U and Harvard U).

“Denver’s Pioneer Astronomer: Herbert Alonso Howe (1858-1926)

Authors: Howe, H. J.; Stencel, R. E.; Fisher, S. Affiliation: Univ.Denver Observatories

Journal: American Astronomical Society, 194th AAS Meeting, #10.03; Bulletin of the American Astronomical Society, Vol. 31, p.840 Publication Date: 05/1999 Abstract

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1999AAS...194.1003H

Additional papers on studies of archaeological sites – Niuheliang [2500 BC, northern China], and Angkor Wat [1100AD, Cambodia] have been published, some in collaboration with DU Anthropology Prof. Sarah Nelson.

[end]