

CURRICULUM VITAE: *Dr Richard Ignace*

<i>Address:</i> Department of Physics & Astronomy College of Arts & Sciences EAST TENNESSEE STATE UNIVERSITY Johnson City, TN 37614	Office of Undergraduate Research Honors College EAST TENNESSEE STATE UNIVERSITY Johnson City, TN 37614
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EDUCATION

Ph.D. in Astronomy, University of Wisconsin, 1996
M.S. in Physics, University of Wisconsin, 1994
M.S. in Astronomy, University of Wisconsin, 1993
B.S. in Astronomy, Indiana University, 1991

POSITIONS HELD

Jan 2015–present, Director of Undergraduate Research & Creative Activities, ETSU
Aug 2013–present, Full Professor: East Tennessee State University
Aug 2007–Jul 2013, Associate Professor: East Tennessee State University
Aug 2003–Jul 2007, Assistant Professor: East Tennessee State University
Sep 2002–Jul 2003, Assistant Scientist: University of Wisconsin
Aug 1999–Aug 2002, Visiting Assistant Professor: University of Iowa
Nov 1996–Aug 1999, Postdoctoral Research Assistant: University of Glasgow

PROFESSIONAL ACTIVITIES

As Director of Undergraduate Research & Creative Activities, I organize the annual Undergraduate Research Symposium and administrate the process for Student-Faculty Collaborative Grants, Summer Fellowship Grants, and Travel Grants, all to support undergraduate scholarly activities.

Successful with publishing scholarly articles and competing for grant funding; author of the astronomy textbook “Astro4U: An Introduction to the Science of the Cosmos,” of the popular astronomy book “Understanding the Universe,” and co-editor of the conference proceedings “The Nature and Evolution of Disks around Hot Stars”

Involved with service to discipline, institution, and community

Principal organizer for STELLAR POLARIMETRY: FROM BIRTH TO DEATH, Jun 2011; and THE NATURE AND EVOLUTION OF DISKS AROUND HOT STARS, Jul 2004; Scientific Organizing Committee for THE PHYSICS AND MODELING OF POLARIZATION IN ASTROPHYSICS, May 2014

Co-organizer for EDUCATION, RESEARCH, AND ECONOMIC IMPACT: MAKING THE FUTURE BRIGHTER FOR NORTHEAST TENNESSEE, Mar 2013

Member of the American Astronomical Society, the International Astronomical Union, and the Council on Undergraduate Research

RESEARCH FUNDING AND OBSERVING TIME

Funding awards in aggregate (nearest \$1000), as PI or co-I: \$4,603,000

(proposals under review are not listed)

66. 2016, NASA/Chandra – “Using the Sharp Chandra’s Eyes to Find a Neutron Star Lurking in the Wind of WR 124,” Oskinova (PI), **Ignace**, Toala, Torrejon, Hainich, Hamann, Chu, Guerrero, \$26,500
65. 2016, National Science Foundation – “Time Resolved Echelle Spectroscopy of Massive Stars at the SARA Observatory,” Petit (PI), Batcheldor, Henson, **Ignace**, \$417,399
64. 2016, NASA/Hubble Space Telescope– “The Wind Variability in Oscillating Massive Stars,” Oskinova (PI), Balona, Hamann, Hubrig, Huenemoerder, **Ignace**, Massa, Prinja, Todt, \$42,426
63. 2016, Gemini Observatory – “Gemini Planet Imager Classical Cepheid Survey,” Neilson (PI), et al (**Ignace** is a co-I), no funding available
62. 2015, NRAO/VLA – “Early-type Stars Magnetospheres,” Leto (PI/Osservatorio Astrofisico di Catania), Oskinova, Trigilio, Umana, Buemi, Ingallinear, **Ignace**, Todt, Leone, observing time only, no funding available
61. 2015, NASA/Chandra – “Using Chandra to Explore New Physics of Magnetic A-Type Stars: KQ Vel and Its Mysterious Companion.” Hubrig (PI/Potsdam), Oskinova, **Ignace**, \$17,000
60. 2015, NASA/Chandra – “A Probe of the Hybrid Colliding Wind and Centrifugal-Magnetospheric X-ray Emission of Plaskett’s Star,” Leutenegger (PI/NASA-GSFC), Grunhut, Wade, Petit, Cohen, Owocki, Sundqvist, Naze, Mahy, **Ignace**, Moffat, Leyder, ud-Doula, \$150,000
59. 2015, NASA/Swift – “SWIFT Monitoring of Rotationally Modulated X-rays from the Keystone Massive Star and SN Progenitor, WR 110,” Oskinova (PI/Potsdam), **Ignace**, Massa, observing time only, no funding involved
58. 2015, NASA/Hubble Space Telescope – “The Wind of ksi Per: A Tomographic View of Stellar Wind Dynamics,” Massa (PI/Space Science Institute), Oskinova, Hamann, Huenemoerder, **Ignace**, Prinja, Lobel, \$12,825 (portion for Ignace)
57. 2014, NRAO/VLA – “The definitive radio study of 3 representative magnetic massive stars,” Leto (PI/Osservatorio Astrofisico di Catania), Oskinova, Trigilio, Umana, Buemi, Ingallinear, **Ignace**, Todt, observing time only, no funding available
56. 2014, NASA/Chandra – “A Deep X-ray Look at a Very Massive Star: HETG Spectroscopy of the Blue Hypergiant HIP 101364,” Huenemoerder (PI/Mass. Inst. of Tech.), Oskinova, Hamann, **Ignace**, Schulz, Neilson, \$56,366
55. 2014, NASA/Chandra – “A Study of Colliding Winds in Short Period B Star Binaries,” **Ignace (PI)**, Hole, Oskinova, \$27,595
54. 2013, NASA/Suzaku – “Comparative Study of Magnetic O-Type Stars with Suzaku,” Oskinova, (PI/U. of Potsdam), Kitamoto, **Ignace**, Hubrig, Kueker, no funding available
53. 2013, NASA/XMM-Newton – “X-ray Characterization of The Unique Stellar Radio Pulsar CU Virginis,” Oskinova (PI/U. of Potsdam), et al, awarded priority “C” time
52. 2012, NASA/XMM-Newton – “What is Nunki?,” Oskinova (PI/U. of Potsdam), **Ignace**, Huenemoerder, no funding involved
51. 2012, NASA/Chandra – “Particle Acceleration in a Bow Shock around ζ Oph,” Oskinova (PI/U. of Potsdam), Pohl, **Ignace**, \$24,497
50. 2012, NASA/Chandra (Large Program) – “Wolf-Rayet Winds at High Spectral Resolution,” Huenemoerder (PI/Chandra X-ray Center), Gayley, Hamann, **Ignace**, Nichols, Oskinova, Pollock, Schulz, \$126,217
49. 2012, NASA/Chandra (Large Program) – “X-ray Geometry of the Wind of the Giant O-Star δ Orionis,” Corcoran (PI/NASA-Goddard), Pollock, Gull, Hamaguchi, Evans, Owocki, Moffat, Wal-

- born, Maiz-Apellanix, Leutenegger, Russell, Waldron, Oskinova, **Ignace**, Nichols, Naze, et al., \$152,216
48. 2012, National Science Foundation/Astronomical Sci. – “REU Supplement for: Tracing the Spectropolarimetric History of Circumstellar Structures from High-Mass Stars through Supernovae,” **Ignace (PI)**, \$7,995
 47. 2011, NASA/XMM-Newton – “X-ray Portrait of a Massive Star with a Magnetic Personality: ξ^1 CMa,” Oskinova (PI/U. of Potsdam), Naze, **Ignace**, Hubrig, awarded observing time; no funding involved
 46. 2011, Tennessee Space Grant – “Student Attraction and Retention in Physics and Astronomy (SARPA) Scholarships,” Smith (PI/ETSU), Giroux, Henson, **Ignace**, Luttermoser, \$10,000
 45. 2011, European Southern Observatory/VLT – “Confirming the Presence of Magnetic Fields in the Most-Evolved Massive Stars,” Hamann (PI/U. of Potsdam), Hubrig, **Ignace**, Oskinova, awarded observing time; no funding involved
 44. 2011, National Science Foundation/Astronomical Sci. – “A Workshop on Stellar Polarimetry: From Birth to Death,” **Ignace (PI)**, Hoffman, \$22,190
 43. 2010, NASA/XMM-Newton – “X-ray Study of Tau-Sco-Like Massive Stars,” **Ignace (PI)**, Oskinova, Massa, awarded observing time; no funding involved
 42. 2010, Tennessee Space Grant – “Student Attraction and Retention in Physics and Astronomy (SARPA) Scholarships,” Smith (PI/ETSU), Giroux, Henson, **Ignace**, Luttermoser, \$18,000
 41. 2010, NASA/Astrophysical Data Program – “Why Evolved Massive Single Stars Create X-rays: Analysis of XMM Observations of WR 6 (EZ CMa),” Gayley (PI/U. of Iowa), **Ignace**, \$42,000
 40. 2010, NASA/Chandra – “Understanding the Weak Winds: High-Resolution Chandra Spectroscopy of μ Col,” Oskinova (PI/U. of Potsdam), Huenemoerder, Hamann, **Ignace**, Todt, Feldmeier, Krticka, Waldron, \$41,802
 39. 2010, European Southern Observatory/VLT – “Search for Magnetic Fields in the Most-Evolved Massive Stars,” Hamann (PI/U. of Potsdam), Hubrig, **Ignace**, Oskinova, awarded observing time; no funding involved
 38. 2010, European Southern Observatory/VLT – “Massive Stars as Cosmic Engines: A VLT-FLAMES survey of massive stars in the supergiant shell SGC SMC 1,” Oskinova (PI/U. of Potsdam), et al. (**Ignace** a listed co-I), awarded observing time; no funding involved
 37. 2010, Canada-France-Hawaii Telescope – “The Magnetic Topology of Tau Sco Analogues,” Petit (PI/West Chester U.), **Ignace**, Kochukhov, Massa, Wade, awarded Priority-C time (dynamic scheduling); no funding involved
 36. 2010, NRAO/EVLA – “A Radio Study of Flaring Be Disks,” **Ignace (PI)**, Matthews, Bjorkman, awarded observing time; no funding involved
 35. 2009, NASA/XMM-Newton – “X-rays at the Latest Stage of a Massive Star’s Life: A thorough study of the Wolf-Rayet star WR 6 with XMM-Newton,” Oskinova (PI/U. of Potsdam), **Ignace**, Hamann, Gayley, Feldmeier, awarded observing time; no funding involved
 34. 2009, NASA/Chandra (Large Program) – “Cosmic Archaeology with Chandra: From a Supergiant Shell to Young Stellar Objects,” Oskinova (PI/U. of Potsdam), Chu, Gallagher, Guerrero-Roncel, Hamann, **Ignace**, Manuel, Naze, Silich, Townsley, Vink, \$63,825
 33. 2009, National Science Foundation/Major Research Instrumentation – “Enhancing and Enlarging the Scientific Impact of the SARA Observatories,” **Ignace (PI)**, Hillwig, Oswalt, and the SARA Consortium, \$382,144
 32. 2009, National Science Foundation/Astronomical Sci. – “REU Supplement for: Tracing the Spectropolarimetric History of Circumstellar Structures from High-Mass Stars through Supernovae,” **Ignace (PI)**, \$9,270
 31. 2008, NASA/XMM-Newton – “X-ray Archaeology of NGC 602: Are massive stars engines of cosmic evolution,” Oskinova (PI/U. of Potsdam), Chu, Guerrero-Roncel, Hamann, **Ignace**, Maddox, Manuel, Naze, Richter, Silich, Vink, awarded observing time; no funding involved
 30. 2008, NASA/XMM-Newton – “Exploring Connections between Magnetism and X-ray Emission in

- Massive Stars,” **Ignace (PI)**, Oskinova, Brown, Cassinelli, Hamann, Waldron, \$65,151
29. 2008, National Science Foundation/Astronomical Sci. – “Galaxy Wars: Star Formation and Stellar Populations in Interacting Galaxies Conference,” Smith (PI/ETSU), Giroux, Henson, **Ignace**, Luttermoser, \$15,000
 28. 2008, NASA/Astrophysical Theory Program – “A Study of Clumps and Bow Shock Structures in Hot Star Stellar Winds,” Waldron (PI/Eureka Scientific Inc.), Cassinelli, **Ignace**, Cho, \$365,703
 27. 2008, National Science Foundation/Astronomical Sci. – “Collaborative Research: RUI: Tracing the Spectropolarimetric History of Circumstellar Structures from High-Mass Stars through Supernovae,” **Ignace (Co-PI)**, Hoffman (Co-PI/U. of Denver), Henson, \$997,702
 26. 2008, CFHT – “Magnetism in Massive Stars (MiMeS),” a Large Programme, Wade (PI/Royal Mil. Coll. of Canada), **Ignace** a named collaborator
 25. 2007, NASA/Suzaku – “X-rays from Magnetically Confined Hot Plasma in τ Sco,” **Ignace (PI)**, Cassinelli, Cohen, Donati, Oskinova, Townsend, Jardine, Ud-Doula, \$20,929
 24. 2007, NASA/XMM-Newton – “Wolf-Rayet 1: A Study of X-ray Production from a Structured and Massive Wind,” **Ignace (PI)**, Oskinova, Ishibashi, Feldmeier, Cassinelli, Brown, \$38,478
 23. 2007, NASA/XMM-Newton – “The Fastest Stellar Winds as New Sources of Hard X-rays,” Oskinova (PI/U. of Potsdam), **Ignace**, Hamann, Chu, Feldmeier, \$30,200
 22. 2007, NASA/Astrophysical Data Program – “A Study of the Variable Hard X-ray Emission from the Massive Interacting Binary Beta Lyrae,” Waldron (PI/Eureka Scientific Inc.), **Ignace**, Hoffman, \$108,915
 21. 2007, AAS International Travel Grant – to attend the Manchester Microlensing Conference (Jan 2008), \$900
 20. 2007, NASA/Chandra – “Can Different Elements Move with Different Velocities in a Radiatively Driven Stellar Wind?,” Oskinova (PI/U. of Potsdam), Feldmeier, Hamann, **Ignace**, Waldron, Guerrero, \$21,431
 19. 2007, National Science Foundation/Astronomical Sci. – “A Workshop on The Biggest, Baddest, Coolest Stars,” Luttermoser (PI/ETSU), Giroux, Henson, **Ignace**, Smith, \$12,730
 18. 2007, NASA/RXTE – “A Study of the Variable Hard X-ray Emission from the Massive Interacting Binary Beta Lyrae,” Waldron (PI/Eureka Scientific Inc.), Hamann, Hoffman, **Ignace**, Oskinova, (observing time only)
 17. 2007, NASA/FUSE – “Non-Spherical Winds and Disks around Rapidly Rotating, Luminous Stars,” **Ignace (PI)**, Kraus, \$20,000
 16. 2006, ESO/VLT – “The Hanle Effect as a Diagnostic of Magnetic Fields in High-Mass Stars,” Hubrig (PI/European Southern Obs.), **Ignace**, Schnerr, Chesneau, (observing time only)
 15. 2006, National Science Foundation/REU Program (SARA Consortium) – “The Southeastern Association for Research in Astronomy REU Site Program,” Wood (PI/Florida Institute of Tech.), **Ignace** listed among Senior Personnel, \$478,180
 14. 2006, ETSU/Research Development Committee Grants – “Development of a Radiative Transfer Code that Incorporates the Hanle Effect,” **Ignace (PI)**, \$2,950
 13. 2006, NASA/Suzaku – “X-ray Study of Hot Plasma in the Interacting Binary Beta Lyrae,” **Ignace (PI)**, Hamann, Hoffman, Oskinova, Waldron, \$24,992
 12. 2005, ETSU – Basler Fellowship, \$10,000
 11. 2004, NASA/Spitzer – “Determining Wolf Rayet Wind Structure from IRS Spectra,” Cassinelli (PI/U. of Wisconsin), Lamers, Churchwell, **Ignace**, \$22,000
 10. 2004, National Science Foundation/Astronomical Sci. – “A Workshop on The Nature and Evolution of Disks around Hot Stars,” **Ignace (PI)**, Bjorkman, Cassinelli, Gayley, \$16,420
 9. 2004, Tennessee Space Grant Consortium – “Promoting Careers in Science: Connecting with Guidance Counselors,” **Ignace (PI)**, Henson, \$2,475
 8. 2003, NASA/Chandra (Theory Program) – “The Clumpy Outflows of Hot Stars and Their X-ray Signatures,” Cassinelli (PI/U. of Wisconsin), Lazarian, Cho, **Ignace**, \$75,000

7. 2001, National Science Foundation/Astronomical Sci. – “Circumstellar Magnetic Field Diagnostics from the Polarization of Line Scattering,” Nordsieck (PI/U. of Wisconsin), Cassinelli, **Ignace**, Lazarian, \$394,000
6. 2000, VLBA – “Probing Shock Structure in the Wolf-Rayet Binaries WR146 and WR147,” Mutel (PI/U. of Iowa), **Ignace**, Gayley, no funding involved
5. 1999, National Science Foundation/Astronomical Sci. – “Probing Circumstellar Envelopes with Gravitational Microlensing”, **Ignace (PI)**, Bjorkman, \$196,000
4. 1999, NASA/XMM-Newton – “X-ray Emission from Single Wolf-Rayet Stars”, **Ignace (PI)**, Brown, Oskinova, \$32,600+\$2,200 augmentation
3. 1998, PPARC – “Reach for the Stars”, Hendry (PI/U. of Glasgow), Barrett, Conway, **Ignace**, awarded under Small Awards Scheme for Projects in Public Understanding of Science
2. 1994 and 1996, NASA/Infrared Space Observatory – “The Velocity Structure of Wolf-Rayet Winds from Infrared Line and Continuum Observations”, Cassinelli (PI/U. of Wisconsin), **Ignace** (while grad student)
1. 1994, NASA/Astrophysical Theory Program – “Multi-Wavelength Diagnostics of Rotation and Non-Spherical Winds in the Wolf-Rayet Stars,” Cassinelli (PI/U. of Wisconsin), Nordsieck, Wood, **Ignace** (while grad student)

PROFESSIONAL DEVELOPMENT

NASA MissionSTEM Summit 2016 (missionstem.nasa.gov), 2016 Aug

SoCon “LEAD” Workshop (www.citadel.edu/root/socon-lead-program), 2016 Jul

AWARDS/HONORS

ETSU Distinguished Research Award for the College of Arts & Sciences (2015-16)

ETSU Distinguished Research Award for the College of Arts & Sciences (2008-09)

Marsico Short Term Visiting Scholar (University of Denver, 2008, Oct)

Selected as the 2005 ETSU Basler Fellow

UNDERSTANDING THE UNIVERSE selected as a Science - Grades 7-12 Honor Book, 2003 Book Awards - Society of School Librarians International (SSLI)

Member of Phi Beta Kappa (since 1990)

Graduated with honors from Indiana University

REFERENCES

1. *Professor Jon E. Bjorkman*
Dept of Physics and Astronomy
University of Toledo
Ritter Observatory 302
Toledo, OH 43606
419 530-8535
jon.bjorkman@utoledo.edu
2. *Professor Emeritus John C. Brown*
Astronomer Royal for Scotland
Physics and Astronomy
Kelvin Building

University of Glasgow
Glasgow G12 8QQ
Scotland
UK 141 330 5182
john@astro.gla.ac.uk

3. *Professor Emeritus Joseph P. Cassinelli*

Dept of Astronomy
University of Wisconsin
5534 Sterling Hall, 475 N. Charter St.
Madison, WI 53706-1582
608 263-4622
joecas@astro.wisc.edu

4. *Professor Donald G. Luttermoser, Chair*

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East Tennessee State University
Box 70652
Johnson City, TN, 37663
423 439-4231
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5. *Professor Robert L. Mutel*

Dept of Physics and Astronomy
University of Iowa
203 Van Allen Hall
Iowa City, IA 52242
319 335-1950
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6. *Professor Nicole St-Louis*

Universite de Montreal
Departement de Physique
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Canada
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ADMINISTRATIVE EXPERIENCE

As Director of the Office of Undergraduate Research & Creative Activities (hereafter, "Office") in the ETSU Honors College, I perform several administrative functions, as summarized in the following.

Oversight of Grant Programs

Student-Faculty Collaborative Grants: issue a call for proposals in Fall and Spring semesters, supervise application review process, issue awards, manage project reports

Summer Fellowship Grants: issue a call for proposals for the summer, supervise application review process, issue awards, manage project reports

Travel Grants: provided on a rolling basis, review of grant requests, issue awards, manage reports

Institutional Engagement

Boland Undergraduate Research Symposium: principal organizer for this annual meeting, formation of a student organizing committee, general management of the meeting and activities

Committee Involvement: serve on the ETSU Research Advisory Committee and the Appalachian Research Forum Committee

Oversight of Training Programs

Laboratory Safety Workshop: the Office offers a lab safety workshop in the fall and spring semesters

Oral Presentation Workshop: the Office offers a workshop to ETSU students on delivering a conference talk

RESEARCH EXPERIENCE

Theoretical

Radiative Transfer: Spectral diagnostics, wind emission lines, spectropolarimetry, line profile inversion

Magnetic Fields: Line polarization diagnostics based on the Hanle and Zeeman effects

Microlensing: As a probe of background sources through selective amplification

Dynamics: Studies of winds from rotating stars, wind bow shock formation

Exoplanets: substellar companions to white dwarf stars; the influence of red giant winds on planetary atmospheres

Observational/Interpretational

X-ray Astronomy: Awarded observing time with Chandra, XMM-Newton, Swift, RXTE, and Suzaku to study massive stars

Ultraviolet Astronomy: Awarded time with FUSE to study massive stars; awarded HST time for xi Per and for beta Ceph variables

Optical Astronomy: Use of CFHT, VLT, and SARA telescopes to study massive stars

Infrared Astronomy: Awarded time with Spitzer and ISO to study massive stars; participated with interpreting GLIMPSE data for the structure of the Milky Way

Radio Astronomy: Awarded EVLA time to study Be star disks; awarded VLA time to study the magnetosphere of HR 7355

TEACHING EXPERIENCE

Undergraduate Courses

East Tennessee State University

- *Astronomy I*: the solar system for non-science majors (includes lab)
- *Astronomy II*: stars and galaxies for non-science majors (includes lab)
- *Research Methods*: contributor for a data analysis lab experience for physics majors
- *General Physics I & II*: algebra/trig level course of physics (mechanics, thermo, E&M, optics)
- *General Physics I and II Labs*
- *Statics*: calculus-based engineering course

- *Astrophysics*: calculus-based course on stellar astronomy
- *Electricity & Magnetism*: vector-calculus E&M course intended for physics majors
- *Physics Seminar*: instructor also serves as seminar organizer for the department
- *Independent Study*: student-led investigation of a problem of interest, with faculty guidance
- *Senior Thesis*: faculty-directed research for majors

University of Iowa

- *Modern Astronomy*: survey of astronomy for non-science majors
- *Characteristics and Origins of the Solar System*: for non-science majors
- *General Astronomy*: survey of astronomy for science majors
- *College Physics*: algebra/trig level course on mechanics and thermodynamics

Research Supervision and Mentoring

Undergraduate

- 1997, E Todd (Glasgow), Monte Carlo Radiative Transfer
- 1998, now Dr C Foullon (Glasgow), X-ray Properties of Wolf-Rayet Winds
- 1999, now Dr M Brookes (Glasgow), Metallicity Effects for Be Star Disks
- 2003, A Ogden-Nussbaum (Wisconsin), X-ray Spectral Modeling of Stellar Winds
- 2003, M Vils (Wisconsin), Microlensing of Large Stellar Sources
- 2005, A Brimeyer (Iowa State) – SARA/REU, Forbidden Lines from Axisymmetric Stellar Winds
- 2006, R Bessey (Berry) – SARA/REU, Forbidden Lines from Colliding Wind Binaries
- 2006, A Burke (Vassar) – SARA/REU, X-ray Line Profiles from Clump Bow Shocks
- 2007, C Bunker (Stony Brook) – SARA/REU, Microlensing of Dusty Envelopes
- 2007, J Carson (Western Kentucky) – SARA/REU, Circumstellar Polarization
- 2007, S Gray (ETSU), $H\alpha$ Variability from β Lyrae
- 2008, R Pedigo (ETSU) – NASA/Chandra/EPO, Analysis of Spitzer Spectra of WR Stars
- 2008, C Price (ETSU) – SARA/REU, Forbidden Line Shapes from Colliding Winds
- 2009, H Fries (ETSU) – NSF, Be Star Target List for SARA
- 2009, M Goodman (ETSU) – REU Supp, Spectral Slopes from Axisymmetric Envelopes
- 2009, S Gray (ETSU) – NSF, Polarimetry from ETSU
- 2009, M Gorski (U of Iowa) – SARA/REU, X-ray Emission from α Cru
- 2009, J Herrington (Clemson) – SARA/REU, Forbidden Lines in Supernovae
- 2009, A Hopkins (ETSU) – NASA/XMM, X-ray Emissions from OB Stars
- 2009, C Price (ETSU) – NASA/ATFP, X-rays from Clumped Hot Star Winds
- 2010, M McFall (Butler) – SARA/REU, X-rays from CIRs in WR Winds
- 2010, B Madsen-Larson (ETSU) – NSF, Emission Lines from Be Disks
- 2010, E Middlemas (ETSU) – TN Space Grant, SARA Be Star Hit List
- 2011, C Brown (ETSU) – NSF, The Hanle Effect in Stellar Photospheres
- 2012, A Adams (ETSU) – REU Supp, Polarization of Mira Stars
- 2012, N Pingel (U of Wisconsin) – SARA/REU, Faraday Rotation Studies
- 2014, J McNeil (ETSU) – Research Discovery Program, Exoplanet Light Curves (co-supervisor with H. Neilson)

- 2015, W Asbury (ETSU) – NSF, Polarization of ϵ Aur (co-supervisor with G. Henson)
- 2015, H Dingus (ETSU) – NSF, Kepler Light Curves of Symbiotic Stars (co-supervisor with G. Henson)
- 2015, F Proulx-Giraldeau (U of Montreal) – Polarimetric modeling of CIRs (lead supervisor N. St-Louis at Montreal)
- 2016, P Tremblay (U of Montreal) – Emission line modeling of CIRs (lead supervisor N. St-Louis at Montreal)
- 2016, A Morelock (ETSU) – Microlensing of Pulsating Stars
- 2016, N Woon (ETSU) – Inversion of Bubble Intensity Profiles for Emissivity

Independent Study

- 2016, A. Morelock (ETSU) – Microlensing of Pulsating Stars

Undergraduate Thesis

- 2013, A Adams (ETSU) – Exploring Mira-Type Stars with Spectropolarimetry
- 2016, H Dingus (ETSU) – A Flickering Analysis of CH Cygni Using Kepler Data
- 2016, D. Gilmer (ETSU) – Leadership in Science

Postdoctorate

- 2001 Sep - 2003 Jul, Dr H. M. Bryce, Microlensing of Extended Sources
- 2009 May - 2012 Jun, Dr K. T. Hole, Spectropolarimetry of Supernovae, currently faculty at Norwich University
- 2012 Oct - 2014 Aug, Dr H. Neilson, Spectropolarimetry of Massive Stars, currently faculty at University of Toronto

SERVICE ACTIVITIES

For Discipline

Elected member of the Organizing Committee for Commission B6: *Astronomical Photometry and Polarimetry*, International Astronomical Union, Aug 2015 - present

Local organizing committee for GALAXY WARS: STELLAR POPULATION AND STAR FORMATION IN INTERACTING GALAXIES, Jul 2009; THE BIGGEST, BADDEST, COOLEST STARS, Jul 2007; and PROBING THE DISTANT UNIVERSE WITH GRAVITATIONAL WAVES, Nov 2005

Peer review referee for several journals in astrophysics, including the *Astrophysical Journal*, *Astrophysical Journal Letters*, *Astronomy & Astrophysics*, *Astronomical Journal*, *Monthly Notices of the Royal Astronomical Society*, *Icarus*, *Astronomische Nachrichten*, *Journal of Quantitative Spectroscopy and Radiative Transfer*

Contributor to a science white paper for the Stars and Stellar Evolution Science Frontiers Panel of the Astro2010 Decadal Survey Committee (www7.nationalacademies.org/bpa/Astro2010.html; lanl.arxiv.org/abs/0902.4222)

Reviewer for National Science Foundation programs in the Astronomical Sciences, including CAREER, PAARE, and REU

Reviewer for NASA research programs, including Astrophysics Data Analysis, Astrophysical Theory, and RXTE

Reviewer for the CFHT ground-based observing program

Member of the Editorial Board for the online undergraduate research publication *Journal of the South-eastern Association for Research in Astronomy* (JSARA), 2007-2013

Reviewer of astronomy and physics textbook chapters, e.g. *College Physics* (W. H. Freeman & Co.), *College Physics* (Wiley), *Visualizing Astronomy* (Wiley), *College Physics* (McGraw-Hill), *Explorations* (McGraw-Hill), *Investigating Astronomy* (W. H. Freeman & Co.), and a physics book by Etkina et al (Pearson)

Reviewer for the 2016 Clean Tech Competition

For Institution

SoCon Undergraduate Research Conference, Planning Committee (2015-16)
Tennessee Board of Regents – High Impact Practice Taxonomy Project (fall 2015)
Tenure & Promotion Committee for College of A&S (2013-15)
Served as a member of the ETSU 125 Task Force (fall 2012)
Reviewer for TBR Diversity Research Grants (spring 2010)
ETSU Junior Day (2010 Mar 24)
College of Arts & Sciences Standing Committee for Academic Misconduct (spring 2012)
College of Arts & Sciences Faculty Council (fall 2009 - spring 2011)
College of Arts & Sciences Awards Committee (fall 2009 - spring 2011)
Member of TBR Audit team for Physics & Astronomy at Austin Peay State University (2009)
Advisor for Pre-Engineering Program (2007-present)
Selection committee for new Director of Sponsored Programs (2007)
ETSU High Performance Cluster Computer Advisory Committee (2006-07; 2010-2013)
Committee for Academic Misconduct (2006-07)
Established new courses *Statics* and *Dynamics* for the Pre-Engineering track (2005-06)
Basler Chair Selection Committee (2005-07)
Departmental seminar coordinator (2004-05; spring 2009)
Various presentations at ETSU Observatory Open Houses and Planetarium
Led the development of a Minor in Astronomy at ETSU (estab. fall 2010)

For Community

Presentations for children and young adults:

- “Science Night” for St. Dominics School in Kingsport (Fall 2014)
- Planetarium presentation to the Bristol YWCA “TechGYRL” group (Jul 2012)
- Presenter for the use of math in careers to 5th graders at Gray Elementary (Feb 2012, May 2013)
- Presenter for the Scientist badge to Webelos Scouts, Gray, TN (Mar/Apr 2011); presenter for Girl Scouts at the Powell Observatory (Feb 2012); presenter for Boy Scouts at Sulfur Springs (Nov 2012)
- “Air Drag” inquiry experiment in science for 2 classes at Daniel Boone High School (Nov 2011, Feb 2012); “Falling Dominoes” inquiry experiment in science for 3 classes at DBHS (Feb 2011); “Unit Conversions” for 3 classes at DBHS (Sep 2010)
- *Encore After School Program*, Kingsport City Schools (Dec 09 – May 10): Jackson Elem, Kennedy Elem, Lincoln Elem, Roosevelt Elem, Sevier Middle, Robinson Middle
- Lamar Elementary School, approx. 300 fourth, fifth, and sixth graders (Jan 2010)
- Developed instructions for a “Sidewalk Solar System” for schools: children use sidewalk chalk to make a scale model of the solar system
- Johnson City Public Library (Jan 2009)
- Gray and Jonesborough Public Libraries (Jun 2008)
- Gray Elementary School, 5th graders (Nov 2009, Nov 2011), 6th graders (Mar 2008, Nov 2010), 7th graders (May 2008)
- Participation in “Career Day” at Gray Elementary (Oct 2006)

- Participant in Science Career Adventure (Jul 2007, Jul 2008)

Keynote speaker for Bays Mountain Astronomy Club (Jan 2013, Jan 2014)

Science Fair Judge (Apr 2014, Apr 2009, Feb 2009, Apr 2008, Mar 2007, Apr 2005)

Participating author of "The Night Sky" column that appears monthly in the Johnson City Press newspaper, see www.etsu.edu/physics/astronomy.htm (fall 2010-present)

Science Olympiad hosted by ETSU: astronomy competition (2004-15)

Discussed careers in science at a meeting of the PTO for Gray Elementary (Jan 2009)

Lecturer at adult evening classes and speaker at amateur astronomy societies (U of Glasgow)

Participant in educating children using a transportable Starlab planetarium (U of Glasgow)

PUBLICATIONS

Books

1. **Ignace**. *Astro4U: An Introduction to the Science of the Cosmos*, 2nd ed. 2015, astronomy textbook, Cognella Publishing (cognella.com)
2. **Ignace**. *Astro4U: An Introduction to the Science of the Cosmos*, 1st ed. 2012, astronomy textbook, Cognella Publishing (cognella.com)
3. **Ignace** and Gayley (eds). *The Nature and Evolution of Disks around Hot Stars*. 2005, proceedings of the workshop, ASP Conf. Ser. #337
4. Prinja and **Ignace**. *Understanding the Universe*. 2002, a popular astronomy book (London: Philips, philips-maps.co.uk) (US edition with Facts On File, factsonfile.com)

Refereed Journals

(Students indicated by †)

1. Neilson, McNeil†, **Ignace**, Lester. "Limb Darkening and Planetary Transits: Testing center-to-limb intensity variations and limb-darkening directly from model stellar atmospheres." 2016, *Astrophysical Journal*, submitted
2. **Ignace**. "Modeling X-ray Emission Lines from Massive Star Winds" (review article). 2016, *Advances in Space Research*, 58, 694
3. Toala, Oskinova, Guerrero, Gonzalez-Galan, **Ignace**, Pohl. "X-ray Observations of Bow Shocks around Runaway O Stars. The case of ζ Oph and BD+43°3654." 2016, *Astrophysical Journal*, 821, 79
4. Hubrig, Scholz, Hamann, Scholler, **Ignace**, Ilyin, Gayley, Oskinova. "Searching for a Magnetic Field in Wolf-Rayet Stars Using FORS 2 Spectropolarimetry." 2016, *Monthly Notices of the Astronomical Society*, 458, 3381
5. **Ignace**. "Long-Wavelength, Free-Free Spectral Energy Distributions from Porous Stellar Winds." 2016, *Monthly Notices of the Royal Astronomical Society*, 457, 4123
6. Wade, et al. "The MiMeS Survey of Magnetism in Massive Stars: Introduction and overview." 2016, *Monthly Notices of the Royal Astronomical Society*, 456, 2
7. Huenemoerder, Gayley, Hamann, **Ignace**, Nichols, Oskinova, Pollock, Schulz, Shenar. "Probing Wolf-Rayet Winds: Chandra/HETG X-Ray Spectra of WR 6." 2015, *Astrophysical Journal*, 815, 29
8. Neilson, **Ignace**. "Period change and stellar evolution of β Cephei stars." 2015, *Astronomy & Astrophysics*, 584, 58
9. Neilson, Izzard, Langer, **Ignace**. "The Strange Evolution of the Large Magellanic Cloud Cepheid OGLE-LMC-CEP1812." 2015, *Astronomy & Astrophysics Letters*, 809, L1

10. Corcoran, et al. (+24 authors). "A Coordinated X-ray and Optical Campaign of the Nearest Massive Eclipsing Binary, δ Ori Aa: I. Overview of the X-ray Spectrum." 2015, *Astrophysical Journal*, 809, 132
11. Nichols, et al. (+20 authors). "A Coordinated X-ray and Optical Campaign of the Nearby Massive Binary δ Orionis Aa: II. X-ray Variability." 2015, *Astrophysical Journal*, 809, 133
12. Pablo, et al. (+46 authors). "A Coordinated X-ray and Optical Campaign of the Nearest Massive Eclipsing Binary, δ Ori Aa: III." 2015, *Astrophysical Journal*, 809, 134
13. Oskinova, Todt, Huenemoerder, Hubrig, **Ignace**, Hamann, Balona. "On X-ray Pulsations in β Cephei-Type Variables." 2015, *Astronomy & Astrophysics*, 577, A32
14. **Ignace**, St-Louis, Proulx-Giraldeau[†]. "Polarimetric Modelling of Co-Rotating Interaction Regions (CIRs) Threading Massive-Star Winds." 2015, *Astronomy & Astrophysics*, 575, 129
15. Hubrig, Scholler, Kholtygin, Tsumura, Hoshino, Kitamoto, Oskinova, **Ignace**, Todt, Ilyin. "New Multiwavelength Observations of the Of?p Star CPD -27° 2561." 2015, *Monthly Notices of the Royal Astronomical Society*, 447, 1885
16. Neilson, **Ignace**, Smith, Henson, Adams[†]. "Evidence of a Mira-Like Tail and Bow Shock about the Semi-Regular Variable V CVn from Four Decades of Polarization Measurements." 2014, *Astronomy & Astrophysics*, 568, 88
17. Oskinova, Naze, **Ignace**, Huenemoerder, Todt, Hubrig, Hamann. "Discovery of X-ray Pulsations from a Massive Star." 2014, *Nature Comm.*, 5, 4024
18. Neilson, **Ignace**. "Convection, Granulation, and Period Jitter in Classical Cepheids." 2014, *Astronomy & Astrophysics Letters*, 563, L4
19. **Ignace**, Gayley, Hamann, Huenemoerder, Oskinova, Pollock, McFall[†]. "The XMM-Newton EPIC X-ray Light Curve Analysis of WR 6." 2013, *Astrophysical Journal*, 775, 29
20. **Ignace**, Pingel[†]. "Faraday Rotation Distributions from Stellar Magnetism in Wind-Blown Bubbles." 2013, *Astrophysical Journal*, 765, 19
21. **Ignace**, Oskinova, Massa. "A Report on the X-ray Properties of the τ Sco Class of Stars." 2013, *Monthly Notices of the Royal Astronomical Society*, 429, 516
22. Grunhut, et al. (+15 authors). "Detection of a Magnetic Field in the Rapidly-Rotating O-Type Secondary of the Colliding-Wind Binary HD 47129 (Plaskett's Star)." 2012, *Monthly Notices of the Royal Astronomical Society*, 428, 1686
23. Grunhut, et al. (+14 authors). "Investigating the Spectroscopic, Magnetic and Circumstellar Variability of the O9 Subgiant Star HD 57682." 2012, *Monthly Notices of the Royal Astronomical Society*, 426, 2208
24. Huenemoerder, Oskinova, **Ignace**, Waldron, Todt, Hamaguchi, Kitamoto. "On the Weak-Wind Problem in Massive Stars: Chandra Observations Reveal a Massive Hot Wind in μ Colombae." 2012, *Astrophysical Journal Letters*, 756, L34
25. **Ignace**, Waldron, Cassinelli, Burke[†]. "X-ray Emission Line Profiles from Wind Clump Bow Shocks in Massive Stars." 2012, *Astrophysical Journal*, 750, 40
26. Hole, **Ignace**. "Variability in X-ray Line Ratios in Helium-like Ions of Hot Stars." 2012, *Astronomy & Astrophysics*, 542, A71
27. Oskinova, Gayley, Hamann, Huenemoerder, **Ignace**, Pollock. "High-Resolution X-ray Spectroscopy reveals the Special Nature of the Wolf-Rayet Star Winds." 2012, *Astrophysical Journal*, 747, L25
28. Oskinova, Todt, **Ignace**, Brown, Cassinelli, Hamann. "Early Magnetic B-type Stars: X-ray Emission and Wind Properties." 2011, *Monthly Notices of the Astronomical Society*, 416, 1456
29. **Ignace**, Hole, Cassinelli, Henson. "Time-Dependent Behavior of Linear Polarization in Unresolved Photospheres, with Applications for the Hanle Effect." 2011, *Astronomy & Astrophysics*, 530, 82
30. Petit, Massa, Macrolino, Wade, **Ignace**. "Discovery of the first τ Sco Analogues: HD 66665 and HD 63425." 2011, *Monthly Notices of the Royal Astronomical Society*, 412, L45
31. **Ignace**. "The Hanle Effect as a Diagnostic of Magnetic Fields in Stellar Envelopes. V. Thin Lines from Keplerian Disks." 2010, *Astrophysical Journal*, 725, 1040

32. **Ignace**, Oskinova, Jardine, Cassinelli, Cohen, Donati, Townsend, Ud-Doula. "A Multi-Phase Suzaku Study of τ Sco." 2010, *Astrophysical Journal*, 721, 1412
33. Oskinova, Gruendl, Chu, **Ignace**, Hamann, Feldmeier. "Hard X-ray Emission from the Massive Star-Forming Region ON 2." 2010, *Astrophysical Journal*, 712, 763
34. **Ignace**, Giroux, Luttermoser. "Radio Emission from Substellar Companions of Evolved Cool Stars." 2010, *Monthly Notices of the Royal Astronomical Society*, 402, 2609
35. Gayley, **Ignace**. "The Zeeman Effect in the Sobolev Approximation II. Radial Split Monopole Fields and the 'Heartbeat' Stokes V Profile." 2010, *Astrophysical Journal*, 708, 615
36. **Ignace**. "Recombination Lines and Free-Free Continua in Asymptotic Ionized Winds: Analytic solution for the radiative transfer." 2009, *Astronomische Nachrichten*, 330, 717
37. Li, Cassinelli, Brown, **Ignace**. "Polarization Variability Arising from Clumps in the Winds of Wolf-Rayet Stars." 2009, *Research in Astronomy and Astrophysics*, 9, 558
38. **Ignace**, Bessey[†], Price[†]. "Modeling Forbidden Line Emission Profiles from Colliding Wind Binaries." 2009, *Monthly Notices of the RAS*, 395, 962
39. **Ignace**, Al-Malki, Simmons, Brown, Clarke, Carson[†]. "Scattering Polarization due to Light Source Anisotropy II. Envelope of Arbitrary Shape." 2009, *Astronomy & Astrophysics*, 496, 503
40. Oskinova, Hamann, **Ignace**, Chu, Feldmeier. "Discovery of X-ray Emission from the Wolf-Rayet Star WR 142 of Oxygen Subtype." 2009, *Astrophysical Journal Letters*, 693, L44
41. **Ignace**, Hubrig, Scholler. "Spectropolarimetric Variability and Co-Rotating Structure in HD 92207." 2008, *Astronomical Journal*, 137, 3339
42. Hubrig, Scholler, Schnerr, Gonzalez, **Ignace**, Henrichs. "Magnetic Field Measurements of O Stars with FORS 1 at the VLT." 2008, *Astronomy & Astrophysics*, 490, 793
43. Cassinelli, **Ignace**, Waldron, Cho, Murphy, Lazarian. "The Effects of Clumps in Explaining X-ray Emission Lines from Hot Stars." 2008, *Astrophysical Journal*, 683, 1052
44. **Ignace**, Oskinova, Waldron, Hoffman, Hamann. "Phase-Dependent X-ray Observations of the β Lyrae System: No eclipse in the soft band." 2008, *Astronomy & Astrophysics*, 477, L37
45. **Ignace**, Cassinelli, Tracy, Churchwell, Lamers. "Neon Abundances from a *Spitzer*/IRS Survey of Wolf-Rayet Stars." 2007, *Astrophysical Journal*, 669, 600
46. **Ignace**, Brimeyer[†]. "Models of Forbidden Line Emission Profiles from Axisymmetric Stellar Winds." 2006, *Monthly Notices of the RAS*, 371, 343
47. Hendry, **Ignace**, Bryce. "Microlensing of Circumstellar Envelopes III. Line Profiles from Stellar Winds in Homologous Expansion." 2006, *Astronomy & Astrophysics*, 450, 1023
48. **Ignace**, Bjorkman, Bryce. "Variable Polarization from Spherical Circumstellar Envelopes during Caustic Crossing Events." 2006, *Monthly Notices of the RAS*, 366, 92
49. Benjamin, et al. (+21 authors). "First GLIMPSE Results on the Stellar Structure of the Galaxy." 2005, *Astrophysical Journal Letters*, 630, L149
50. Brown, Cassinelli, Li, Kholtygin, **Ignace**. "Optically Thick Clumps – Not the Solution to the Wolf-Rayet Wind Momentum Problem?" 2004, *Astronomy & Astrophysics*, 426, 323
51. **Ignace**, Churchwell. "Free-Free Spectral Energy Distributions of Hierarchically Clumped HII Regions." 2004, *Astrophysical Journal*, 610, 351
52. **Ignace**, Nordsieck, Cassinelli. "The Hanle Effect as a Diagnostic of Magnetic Fields in Stellar Envelopes IV. Application to Polarized P Cygni Wind Lines." 2004, *Astrophysical Journal*, 609, 1018
53. **Ignace**, Quigley, Cassinelli. "Constraints from Infrared Space Observatory Data on the Velocity Law and Clumpiness of WR 136." 2003, *Astrophysical Journal*, 596, 538
54. **Ignace**, Oskinova, Brown. "XMM-Newton Observations of the Nitrogen-Rich Wolf-Rayet Star WR 1." 2003, *Astronomy & Astrophysics*, 408, 353
55. **Ignace**, Gayley. "The Zeeman Effect in the Sobolev Approximation: Applications to Spherical Stellar Winds." 2003, *Monthly Notices of the RAS*, 341, 179
56. Oskinova, **Ignace**, Hamann, Pollock, Brown. "The Conspicuous Absence of X-ray Emission from

- Carbon-Enriched Wolf-Rayet Stars." 2003, *Astronomy & Astrophysics*, 402, 755
57. Bryce, **Ignace**, Hendry. "Microlensing of Circumstellar Envelopes II. Emission Lines from Radial and Azimuthal Flow during Fold Caustic Crossings." 2003, *Astronomy & Astrophysics*, 401, 339
 58. Simmons, Bjorkman, **Ignace**, Coleman. "Polarimetric Light Curves from Microlensing of Spherical Circumstellar Envelopes." 2002, *Monthly Notices of the RAS*, 336, 501
 59. **Ignace**, Gayley. "Profile Shapes for Optically Thick X-ray Emission Lines from Stellar Winds." 2002, *Astrophysical Journal*, 568, 954
 60. **Ignace**. "SED Signatures of Jovian Planets Around White Dwarf Stars." 2001, *Publications of the Astronomical Society of the Pacific*, 113, 1227
 61. Gayley, **Ignace**, Owocki. "Line Forces in Keplerian Disks Around Hot Stars." 2001, *Astrophysical Journal*, 558, 802
 62. **Ignace**, Cassinelli, Quigley, Babler. "Terminal Speeds and Ion Fractions from [CaV] $3.207 \mu\text{m}$ in Three Single WN Stars." 2001, *Astrophysical Journal*, 558, 771
 63. Oskinova, **Ignace**, Brown, Cassinelli. "Modelling X-ray Variability in the Structured Atmospheres of Hot Stars." 2001, *Astronomy & Astrophysics*, 373, 1009
 64. **Ignace**. "Theoretical Profile Shapes for Optically Thin X-ray Emission Lines from Spherical Stellar Winds." 2001, *Astrophysical Journal Letters*, 549, L125
 65. **Ignace**. "The Hanle Effect as a Diagnostic of Magnetic Fields in Stellar Envelopes III. The Case of a Finite Star." 2001, *Astrophysical Journal*, 547, 393
 66. **Ignace**. "Resonance Line Scattering Polarization in Optically Thin Planar Equatorial Disks." 2000, *Astronomy and Astrophysics*, 363, 1106
 67. **Ignace**, Oskinova, Foullon[†]. "Exospheric Models for the X-ray Emission from Single Wolf-Rayet Stars." 2000, *Monthly Notices of the Royal Astronomical Society*, 318, 214
 68. **Ignace**, Hendry. "Analytic Inversion of Emission Lines of Arbitrary Optical Depth for the Structure of Supernova Ejecta." 2000, *Astrophysical Journal Letters*, 537, L131
 69. Li, Brown, **Ignace**, Cassinelli, Oskinova. "Wolf-Rayet Wind Fine Structure and Optical Variability." 2000, *Astronomy & Astrophysics*, 357, 233
 70. Brown, **Ignace**, Cassinelli. "Hot Star Polarimetric Variability and the Nature of Wind Inhomogeneities." 2000, *Astronomy & Astrophysics*, 356, 619
 71. **Ignace**, Oskinova. "An Explanation of Observed Trends in the X-ray Emission from Single Wolf-Rayet Stars." 1999, *Astronomy & Astrophysics Letters*, 348, L45
 72. Al-Malki, Simmons, **Ignace**, Brown, Clarke. "Scattering Polarization due to Light Source Anisotropy I. Large Spherical Envelope." 1999, *Astronomy & Astrophysics*, 347, 919
 73. **Ignace**, Hendry. "Microlensing of Circumstellar Envelopes I. Simplified Considerations for Diagnosing Radial and Azimuthal Flow." 1999, *Astronomy & Astrophysics*, 341, 201
 74. **Ignace**, Cassinelli, Nordsieck. "The Hanle Effect as a Diagnostic of Magnetic Fields in Stellar Envelopes II. Some Theoretical Results for Resolved Line Profiles." 1999, *Astrophysical Journal*, 520, 335
 75. **Ignace**. "Emission Line Profile Shapes from Anisotropic Scattering in Planar Equatorial Disks." 1998, *Astronomy & Astrophysics*, 337, 819
 76. **Ignace**, Brown, Milne, Cassinelli. "Inference of Steady Stellar Wind $v(r)$ Laws from Optically Thin Emission Lines III. Inversion of total line intensity distributions." 1998, *Astronomy & Astrophysics*, 337, 223
 77. **Ignace**, Cassinelli, Bjorkman. "WCFields: Magnetic Rotating Stellar Wind Models from Wind Compression Theory." 1998, *Astrophysical Journal*, 505, 910
 78. **Ignace**. "A Re-evaluation of Profile Shapes from Resonance Line Scattering in Spherical Stellar Winds." 1998, *Astronomy and Astrophysics*, 332, 686
 79. **Ignace**, Brown, Richardson, Cassinelli. "Inference of Steady Stellar Wind $v(r)$ Laws from Optically Thin Emission Lines II. Occultation effects and the determination of intrinsic stellar properties." 1998, *Astronomy & Astrophysics*, 330, 253

80. Brown, Richardson, Cassinelli, **Ignace**. "Inference of Steady Stellar Wind $v(r)$ Laws from Optically Thin Emission Lines I. Idealised analysis for the profile of a single line" 1997, *Astronomy & Astrophysics*, 325, 677
81. **Ignace**, Nordsieck, Cassinelli. "The Hanle Effect as a Diagnostic of Magnetic Fields in Stellar Envelopes I. Theoretical Results for Integrated Line Profiles." 1997, *Astrophysical Journal*, 486, 550
82. **Ignace**, Cassinelli, Bjorkman. "Equatorial Wind-Compression Effects Across the H-R Diagram." 1996, *Astrophysical Journal*, 459, 671
83. Bjorkman, **Ignace**, Cassinelli, Tripp. "Evidence for a Disk in the Wind of HD 93521: UV Line Profiles from an Axisymmetric Model." 1994, *Astrophysical Journal*, 435, 416

Conferences

(Invited or Contributed Talks; students indicated by †)

1. **Ignace**, Henson, Asbury. "Modeling the Variable Polarization of Epsilon Aurigae." 2016, Jun AAS meeting #228, oral 208.04
2. Huenemoerder, Oskinova, **Ignace**, Hamann, Schulz, Neilson, Shenar. "A Deep X-ray look at a very massive star: HETGS spectroscopy of the blue hypergiant Cyg OB2-12 (HIP 101364)." 2016, American Astronomical Society, HEAD meeting #15, 117.02
3. Huenemoerder, Gayley, Hamann, **Ignace**, Nichols, Oskinova, Pollock, Schulz. "High Resolution X-ray Spectra of WR 6." 2015, in *Wolf-Rayet Stars*, (eds) W.-R. Hamann, A. Sander, H. Todt, (Universitätsverlag Potsdam)
4. **Ignace**. "Radio Emission from Macroclumps in Massive Star Winds." 2014, Jun AAS meeting #224, oral 404.06
5. Neilson, **Ignace**. "Cepheid in the Eclipsing Binary System OGLE-LMC-CEP1812 is a Stellar Merger." 2014, Jun AAS meeting #224, 314.03
6. **Ignace** (invited). "Continuum Polarization in Circumstellar Media." 2014, oral presentation given at Theory and Modelling of Polarisation in Astrophysics (see www.asu.cas.cz/~wg2prague)
7. **Ignace** (invited). "Faraday Rotation Effects for Diagnosing Magnetism in Bubble Environments." 2014, in *Wind Bubbles, Astrospheres and the Heliosphere: Environments and Cosmic Rays*, (eds) D. Bomans, H. Fichtner, K. Scherer, J. Tjus, K. Weis, *ASTRA Proc.*, vol. 1, (Copernicus Pub.), 1
8. **Ignace**, Waldron, Cassinelli. "X-ray Emissions from Clump Bowshocks in Massive Star Winds." 2012, Jan AAS meeting #219, oral 224.01
9. Huenemoerder, Oskinova, Hamann, **Ignace**, Todt, Waldron. "X-Ray Line Emission from Weak Wind O-Stars." 2011, American Astronomical Society, HEAD meeting #12, #10.02
10. Oskinova, Todt, **Ignace**, Brown, Cassinelli, Hamann. "Early Magnetic B-Type Stars: X-ray Emission and Wind Properties." 2011, to appear in *The X-ray Universe*
11. **Ignace**, Hole, Cassinelli, Henson. "Linear Polarization Light Curves of Oblique Magnetic Rotators." 2011, May AAS meeting #218, oral #121.06
12. Oskinova, Hamann, **Ignace**, Feldmeier. "X-rays, Clumping, and Wind Structures." 2011, *Proceedings of the 39th Liege Astrophysical Colloquium*, (eds) G. Rauw, M. de Becker, Y. Naze, J.-M. Vreux, P. Williams, v. 80, 54
13. **Ignace**, Giroux, Luttermoser. "Radio Emissions from Companions to Cool Giant Stars." 2010, January AAS meeting #215, oral #377.04
14. Gayley, **Ignace**. "The Zeeman Effect in Hot-Star Winds with a Split Monopole Magnetic Field." 2009, in *Recent Directions in Astrophysical Quantitative Spectroscopy and Radiation Hydrodynamics*, AIP Conf. Proc. #1171, 187
15. **Ignace**, Bjorkman, Bunker†. "Polarization and SEDs from Microlensing of Circumstellar Envelopes." 2008, *Proceedings of the Manchester Microlensing Conference: The 12th International Conference and ANGLES Microlensing Workshop*, (eds.) Kerins, Mao, Rattenbury, Wyrzykowski (arXiv:0804.2176)

16. **Ignace**, Gayley (invited). "Circumstellar Magnetic Field Diagnostics from Line Polarization." 2008, in Clumping in Hot Star Winds, (eds.) Hamann, Feldmeier, Oskinova, 137
17. Cassinelli, **Ignace**, Waldron, Cho, Murphy, Lazarian. "X-ray Line Emission Produced in Clump Bow Shocks." 2008, in Clumping in Hot Star Winds, (eds.) Hamann, Feldmeier, Oskinova, 217
18. Hubrig, Scholler, Briquet, Szeifer, Pogodin, Yudin, Gonazalez, Aerts, Morel, De Cat, **Ignace**, North, Mathys, Peters. "Magnetic Fields in Massive Stars." 2007, in Contributions of the Astronomical Observatory Skalnaté Pleso, v. 38, 223
19. **Ignace**. "The Hanle Effect for Circumstellar Media." 2007, Solar and Stellar Astrophysics, a symposium in honor of John Brown, Regius Professor of Astronomy at the University of Glasgow and Tenth Astronomer Royal for Scotland
20. **Ignace**, Oskinova, Waldron, Hoffman, Hamann. "An X-ray View of the Interacting Binary Beta Lyrae with Suzaku." 2007, oral, BAAS, 38, 1217
21. **Ignace**, Bryce, Hendry. "Microlensing Effects on Emission Lines from Homologously Expanding Winds." 2005, oral, BAAS, 36, 1401
22. **Ignace**. "Discerning Circumstellar Magnetic Fields with the Hanle Effect." 2004, at Massive Stars: from Photosphere to V_{∞} , a workshop to honor the career of Joseph P. Cassinelli
23. **Ignace**, Churchwell. "Considerations of Clumpiness for the Free-Free Radio Spectra of Compact HII Regions." 2004, oral, BAAS, 35, 1319
24. **Ignace** (invited). "Issues in Modelling X-ray Line Profiles from Circumstellar Flows." 2003, at Structure in Hot Star Winds, workshop held at UCL
25. **Ignace** (invited). "The Hanle Effect as a Diagnostic of Magnetic Fields." 2003, in Magnetic Fields in O, B and A Stars: Origin and Relation to Pulsation, Rotation and Mass Loss, (eds.) Balona, Henrichs, and Medupe, 28
26. **Ignace**, Oskinova, Pollock, Brown, Hamann. "X-rays from Wolf-Rayet Stars." 2002, oral, BAAS, 34, 1156
27. Oskinova, Brown, Cassinelli, **Ignace**. "What Do the Filling Factors of X-ray Emitting Material Tell Us?" 2002, in Interacting Winds from Massive Stars, ASP Conf. #260, (eds.) A. Moffat and N. St.-Louis, 205
28. **Ignace**, Gayley. "Theoretical X-ray Emission Line Profiles in Expanding Flows, and Application to the Wind of ζ Puppis." 2002, oral, BAAS, 33, 1523
29. Cassinelli, Nordsieck, **Ignace**. "Determination of Magnetic Fields in the Winds from Hot Stars Using the Hanle Effect." 2001, in Magnetic Fields across the Hertzsprung-Russell Diagram, ASP Conf. Ser. #248, (eds.) G. Mathys, S. Solanki, and D. Wickramasinghe, 409
30. **Ignace**. "Polarization Light Curves from Microlensing of Extended Spherical Envelopes." 2001, oral, BAAS, 33, 817
31. Bryce, Hendry, **Ignace**, Valls-Gabaud. "Microlensing of Extended Sources." 2001, in Gravitational Lensing: Recent Progress and Future Goals, ASP Conf. Ser. #237, (eds.) Brainerd and Kochanek, 251
32. Gayley, **Ignace**, Owocki. "Radiative Forces in Be Disks: Precession of Nearly Circular Orbits." 2001, oral, BAAS, 32, 1502
33. **Ignace**. "Status of the Hanle Effect for Stars." 2001, in Advanced Solar Polarimetry – Theory, Observation, and Instrumentation, ASP Conf. Ser. #236, (ed.) M. Sigwarth, 227
34. **Ignace**, Hendry. "Analytic Inversion of Emission Lines of Arbitrary Optical Depth for the Structure of Supernova Ejecta." 2000, oral, 32, 764
35. Oskinova, **Ignace**. "Variability of X-ray Emission from Inhomogeneous Hot Star Winds." 2000, in Thermal and Ionization Aspects of Flows from Hot stars, ASP Conf. Ser. 204, (eds.) H. Lamers and A. Sagar, 221
36. **Ignace**. "Polarization from Be Disks with 1-Armed Density Waves." 2000, in The Be Phenomenon in Early-Type Stars, IAU Colloq. #175, (eds.) M. Smith, H. Henrichs, and J. Fabregat, 452
37. **Ignace**. "Polarimetric Variability in Inhomogeneous Stellar Winds." 1999 Robert Cormack Bequest

Meeting in Astronomy hosted by Glasgow Caledonian University, (organizer) B. Steves

38. **Ignace**. "Imaging Circumstellar Envelopes with Microlensing." 1999, a one day meeting on Gravitational Microlensing hosted by The Royal Astronomical Society, (organizers) D. Valls-Gabaud and W. Sutherland
39. Brown, **Ignace**, Piana. "Inverse Spectropolarimetric Modeling of Hot Star Wind Structure and Variability." 1999, in Variable and Non-Spherical Stellar Winds in Luminous Stars, IAU Colloq # 169, (eds.) B. Wolf, O. Stahl, and A. Fullerton, 111
40. **Ignace** (invited). "The Hanle Effect as a Probe of Stellar Magnetic Fields." 1998, in Cyclical Variability of Stellar Winds, (eds.) L. Kaper and A. Fullerton (Berlin: Springer), 224
41. Cassinelli, **Ignace**. "Disks Around B[e] and LBV Stars." 1997, in Luminous Blue Variables: Massive Stars in Transition, (eds.) A. Nota and H. Lamers, ASP Conf. Series #120, 166
42. **Ignace**. "Theoretical and Observational Consequences of Rotation and Magnetic Fields in Stellar Winds." 1996, oral contribution (dissertation) at the 188th AAS meeting
43. Cassinelli, **Ignace**. "Wind Compression Effects in WR Winds, and the Hanle Effect as a Magnetic Field Diagnostic." 1996, in Wolf-Rayet Stars in the Framework of Stellar Evolution, 33rd Liege Int. Astroph. Coll., (eds.) J. M. Vreux et al., 531
44. Cassinelli, **Ignace**, Bjorkman. "Winds from Rotating Wolf-Rayet Stars: The Wind-Compressed Zone Model." 1995, in Wolf-Rayet Stars: Binaries, Colliding Winds, Evolution, IAU Symp. #163, (eds.) K. van der Hucht and P. Williams (Dordrecht: Kluwer), 191

Miscellany of Note

(Students indicated by †)

1. Pingel†, **Ignace**. "Investigating the Faraday Rotation Morphologies of Circumstellar and Interstellar Bubbles." 2012, JSARA, 7, 23
2. Adams†, **Ignace**. "Polarization of Light Emitted from Mira-Type Stars." 2012, JSARA, 7, 60
3. McFall†, **Ignace**. "Modeling the Variation of X-rays from Wolf-Rayet Stars." 2012, JSARA, 5, 8
4. **Ignace**. "The Sidewalk Solar System." 2010, ebook instructions for a scale model of the planets (www.smashwords.com)
5. Gorski†, **Ignace**. "An X-ray Analysis of α Cru." 2010, JSARA, 4, 12
6. Herrington†, **Ignace**, Hole. "Modeling Asymmetric Forbidden Line Emission Profiles in Supernovae with Clumping." 2010, JSARA, 4, 15
7. Price†, **Ignace**. "The Doppler Footprint of Colliding Binary Winds in Emission Line Profile Shapes." 2010, JSARA, 3, 2
8. Bunker†, **Ignace**. "Microlensing of Dusty Stellar Envelopes by a Point Mass Lens." 2008, JSARA, 2, 6
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