Anca Constantin

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EDUCATION

Ph.D., Physics (Astrophysics; advisor – Joe Shields) 2004
Ohio University, Athens, OH

B.S., Physics 1995
University of Bucharest, Bucharest, Romania

EMPLOYMENT

Research Assistant Professor 2006-present
Department of Physics, Drexel University, Philadelphia, PA

Postdoctoral Research Associate 2004-2006
Department of Physics, Drexel University, Philadelphia, PA

Research Assistant 2000-2004
Department of Physics and Astronomy, Ohio University, Athens, OH

Teaching Assistant 1998-2000
Department of Physics and Astronomy, Ohio University, Athens, OH

Lecturer 1995-1998
Ienachita Vacarescu College, Targoviste, Romania

AWARDS, GRANTS

- NSF - Astronomy and Astrophysics Research Grant: "Empirical Tests for Galactic Black Hole Growth" (proposal author: A. Constantin; administrative PI: M. Vogeley; $290,000) 2005-2008
- Ohio University Travel Grant (financial support to attend AAS 203rd Meeting, Atlanta, GA, January 2004) Fall, 2003
- John Cady Graduate Fellowship, awarded yearly to one Ohio University graduate student, provides full financial support 2002-2003
- University of Bucharest, Diploma in Physics Teaching 1997
- University of Bucharest, National Merit Scholarship 1993-1995

ACADEMIC, PROFESSIONAL SERVICE

- scientific reviewer for The Monthly Notices of the Royal Astronomical Society (MNRAS), and The Astronomical Journal (AJ) 2004–
- judge for The Southeastern Ohio Science Fair 2004
- Astronomy Outreach Committee -Ohio U. 2001–2004
- webmaster WIPHA (Women in Physics and Astronomy)-Ohio U. 2001–2004
- Working Group on International Teaching Assistants-Ohio U. 1999

PROFESSIONAL MEMBERSHIP

- American Astronomical Society (AAS)
- American Physical Society (APS)
- Sigma Xi
- *The Sloan Digital Sky Survey* (SDSS) Collaboration

TEACHING EXPERIENCE

- organized and conducted the Astrophysics Seminar – Drexel University
- supervised scientific research for two graduate students – Drexel University
- taught laboratory physics classes, conducted student help sessions, graded undergraduate and graduate course work, classes of 15 to 30 studetns – Ohio University
- designed and taught full undergraduate (algebra and calculus based) physics courses for physics and engineering majors, classes of 20 to 40 students – Ienachita Vacarescu College

RESEARCH EXPERIENCE

- investigating the panchromatic properties of the largest sample of Low Luminosity Active Galaxies by examining for the first time in a statistical sense their black hole masses and accretion activity; based on data from $SDSS$, $GALEX$, $SPITZER$, $VLA(FIRST)$, XMM, and $ROSAT$.
- exploring Active Galactic Nuclei properties in void galaxies detected in $SDSS$.
- conducted a thorough analysis of the spatial clustering properties of the largest sample of Active Galactic Nuclei in the nearby universe; based on $SDSS$ data.
- led a study of the emission-line activity in a large sample of nearby low-luminosity emission-line galaxy nuclei that constrains the nature and census of accretion-powered sources at $z \approx 0$ based on *Hubble Space Telescope (HST)* data.
- designed and implemented a Monte Carlo based synthetic observational survey of quasars/Seyferts aimed at understanding the role of the intrinsic dust extinction in their observed continuum energy distribution.
- initiated and completed a study of the Narrow Line Seyfert 1 (NLS1)'s UV-optical properties based on HST archival spectra; implemented spectral PCA to address the proposed analogy between $z > 4$ QSOs and NLS1s.
- conducted an exhaustive analysis of the $z > 4$ QSOs' emission line properties, selection effects, and implications on the early star-formation processes and primordial abundances.
- reduced/analysed large sets of optical spectra of $z > 2$ QSOs acquired at MMT and Keck, to address the nature of Baldwin Effect, investigate chemical enrichment in the early universe and its cosmological evolution.
- reduced/analysed CCD image frames acquired with small (0.25 m) class telescopes (at Ohio University, 10+ observing nights).
- frequent user of STIS, FOS, GHRS (HST), and the Sloan Digital Sky Survey 2.5m, data; observed 50+ objects (3 nights, spectroscopic program) at KPNO WIYN 3.5m Telescope (2004)

OTHER EXPERIENCE

- Programming: C/C++, Java, Fortran
- Operating Systems: Unix, Macintosh, Windows
- Analysis & Visualization: IRAF, IDL, PV-WAVE, Maple, Mathematica
- Office & Presentation: Microsoft PowerPoint, Excel, and Word, LaTeX, HTML
- Manipulating and mining large datasets, in particular SDSS data.
- Grant proposal: extensive experience with every stage, from letters of intent to proposal writing, budgeting, and final reports.
- Languages: Romanian (native), English, (basic) French, (basic) Spanish

PRESENTATIONS, WORKSHOPS

Public Talks

- The Delaware Valley Amateur Astronomers, PA, April 2005, Invited Public Presentation.

Colloquia & Seminars

- Drexel University, Philadelphia PA, November 2006, Colloquium.
- Carnegie-Mellon University, Pittsburgh PA, April 2006, Astro-Journal Club.
- Widener University, Chester PA, November 2005, Colloquium.
- Ohio University, Athens, OH, October 2005, Astrophysics Seminar.
- Space Telescope Science Institute, Baltimore, MD, March 2005, AGN Journal Club.
- University of Pennsylvania, Philadelphia, PA, February 2005, Astro-Journal Club.
- Drexel University, Philadelphia, PA, April 2004, Astrophysics Seminar.
- Ohio University, Athens, OH, November 2001, Astrophysics Seminar.

Conferences

- "The Central Engine of Active Galactic Nuclei," Xi'an Jiaotong University, China, October 2006, contributed talk.
- "The History of Nuclear Black Holes in Galaxies," Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, May 2006, contributed poster.
- "SDSS II Collaboration Meeting," Santa Fe, NM, March 2006, 3 contributed talks, for the General Session and the Quasars and Galaxy Working Groups.
- AAS 207th Meeting, Washington, DC, January 2006, contributed talk.
- AAS 205th Meeting, San Diego, CA, January 2005, dissertation talk.
- "Extragalactic Astrophysics and the New Era of High-Energy Astronomy," Ohio Section of APS, Spring Meeting, Athens, OH, April 2004, contributed talk.
- AAS 203rd Meeting, Atlanta, GA, January 2004, contributed poster.
- "AGN Physics with the Sloan Digital Sky Survey," Princeton, NJ, July 2003, contributed poster
- AAS 197th Meeting, San Diego, CA, January 2001, contributed poster.
- "Advanced Lectures on the Starburst-AGN Connection," Tonantzintla, Puebla, Mexico, June 2000, contributed poster.

Others

- Summer School on Adaptive Optics 2002, University of California in Santa Cruz, CA, August 2002
- 2nd Summer School on Lasers and Plasma Physics, A. I. Cuza University and Universitè Paris Sud, Iasi, Romania, July 1995

PUBLICATIONS

Refereed Publications

1. **Constantin, A.**, Hoyle, F.,& Vogeley, M.S., 2006, submitted to the SDSS collaboration, to be submitted to *The Astrophysical Journal*.
The Active Galactic Nuclei in Void Regions.

2. **Constantin, A.**, Shields, J. C., Ho, L.C., Barth, A., & Filippenko, A. V., 2006, *The Astrophysical Journal*, submitted.
The Power Sources of the Low Luminosity Emission-Line Galaxy Nuclei.

3. **Constantin, A.**, & Vogeley, M.S., 2006, *The Astrophysical Journal*, **650**, 727
The Clustering of Low Luminosity Active Galactic Nuclei.

4. Dietrich, M., Hamann, F., Shields, J. C., **Constantin, A.**, Heidt, J., Jäger, K., Vestergaard, M., and Wagner, S. J., 2003, *The Astrophysical Journal*, **589**, 722
Quasar Elemental Abundances at High Redshift.

5. **Constantin, A.**, & Shields, J. C., 2003, *The Publications of the Astronomical Society of the Pacific*, **115**, 592
Ultraviolet and optical properties of the Narrow-Line Seyfert 1 galaxies.

6. Dietrich, M., Hamann, F., Shields, J. C., **Constantin, A.**, Vestergaard, M., Chaffee, F. H., Foltz, C. B., and Junkkarinen, V. T., 2002, *The Astrophysical Journal*, **581**, 912
Continuum and Emission Line Strength Relations for a Large Active Galactic Nuclei Sample.

7. Warner, C., Hamann, F., Shields, J. C., **Constantin, A.**, Foltz, G. B., and Chaffee, F. H., 2002, *The Astrophysical Journal*, **567**, 68
The Metallicity of the Redshift 4.16 Quasar BR2248-1242.

8. **Constantin, A.**, Shields, J. C., Hamann, F., Foltz, G. B., and Chaffee, F. H., 2002, *The Astrophysical Journal*, **565**, 50
Emission-line Properties of $z > 4$ Quasars

Conference Papers & Others

1. **Constantin, A.** & Vogeley, M. S., "The Large Scale Structure of LINERs and Seyferts and Implications for their Central Engines," in *The Central Engine of Active Galactic Nuclei*, ed. Luis C. Ho & Jian-Min Wang, the Astronomical Society of the Pacific Conference Series (ASPCS), 2007, in press.

2. Parejko, J., **Constantin, A.**, Vogeley, M. S., & Hoyle, F., "The Spectral Energy Distributions of Normal and Weakly-Active Galaxies," BAAS, 209, 2006, in press.

3. **Constantin, A.**, "Linking the Power Sources of Emission-Line Galaxy Nuclei from the Highest to the Lowest Redshifts," 2005, *The Publications of the Astronomical Society of the Pacific*, 116, 1153

4. **Constantin, A.**, & Vogeley, M. S., "AGN Activity and Galaxy Clustering," BAAS, 37, 149.05, 2005

5. **Constantin, A.** & Shields, J. C., "Emission and Absorption in Narrow-Line Seyfert 1 Galaxies," in *AGN Physics with the Sloan Digital Sky Survey*, ed. G. T. Richards & P. B. Hall (San Francisco: APS), 2004, p269

6. **Constantin, A.**, & Shields, J. C., "Linking the Power Sources of Emission-Line Galaxy Nuclei from the Lowest to the Highest Redshifts," BAAS, 205, 30.05, 2004

7. Shields, J. C., & **Constantin, A.**, "Quasars and Narrow-Line Seyfert 1s: Trends and Selection Effects," in *AGN Physics with the Sloan Digital Sky Survey*, ed. G. T. Richards & P. B. Hall (San Francisco: APS), 2004, p265

8. **Constantin, A.**, & Shields, J. C., "Emission and Absorption in Narrow-Line Seyfert 1 Galaxies," in *AGN Physics with the Sloan Digital Sky Survey*, ed. G. T. Richards & P. B. Hall (San Francisco: APS), 2004, p269

9. **Constantin, A.**, & Shields, J. C., "The Role of Dust in Modifying Quasar SEDs," BAAS, 203, 78.14, 2003

10. Dietrich, M., Hamann, F., Shields, J. C., **Constantin, A.**, Appenzeller, I., & Wagner, S. J., "Elemental Abundances and High Redshift Quasars," in *Galaxy Evolution: Theory & Observations*, eds. V. Avila-Reese, C. Firmani, C. S. Frenk & C. Allen, Revista Mexicana de Astronomia y Astrofisica (Serie de Conferencias) Vol. 17, p264, 2003

11. Dietrich, M., Hamann, F., Shields, J. C., **Constantin, A.**, Vestergaard, M., "Continuum and Emission line Correlations in AGN," in ASP Conf. Ser. 290, *Active Galactic Nuclei: from Central Engine to Host Galaxy*, eds. S. Collin, F. Combes, & I. Shlosman (San Francisco: ASP), 607, 2003

12. Warner, C., Hamann, F., Dietrich, M., Shields, J. C., **Constantin, A.**, & Junkkarinen, V., "The Relationships Between Black Hole Mass, Quasar Metallicity, and Host Galaxy Mass," BAAS, 201, 114.18, 2002

13. **Constantin, A.**, Shields, J. C., & Hamann, F., "Emission-Line Properties and Selection Effects for $z > 4$ Quasars," BAAS, 197, 110.06, 2000

Articles in preparation

1. **Constantin, A.**, & Filho, M., to be submitted to *The Astrophysical Journal*, January/February, 2007
   The Local Active Galaxy Luminosity Function by Spectral Type.

2. Parejko, J., **Constantin, A.**, Hoyle, F. & Vogeley, M.S., to be submitted to *The Astrophysical Journal*, March, 2007
   The Spectral Energy Distribution of the SDSS Selected Low Luminosity AGN.

3. Parejko, J., **Constantin, A.**, Hoyle, F. & Vogeley, M.S., to be submitted to *The Astronomical Journal*, March, 2007
   The ROSAT Detections of the SDSS Main Galaxy Sample.

PROFESSIONAL REFERENCES

1. Joseph C. Shields, Professor & Chair (PhD Thesis advisor)

   Dept. of Physics and Astronomy
   251B Clippinger Research Labs,
   Ohio University, Athens, OH 45701, USA
   phone: (740) 593-0336
   e-mail: shields@helios.phy.ohiou.edu

2. Michael S. Vogeley, Associate Professor (Research & Teaching)

   Dept. of Physics
   3141 Chestnut Street
   Drexel University, Philadelphia, PA 19104, USA
   phone: (215) 895-2710
   e-mail: vogeley@drexel.edu

3. Fred Hamann, Professor (Research)

   Dept. of Astronomy
   210 Bryant Space Science Center
   University of Florida, Gainesville, FL 32611-2055, USA
   phone: (352) 392-2052, Ext 245
   e-mail: hamann@astro.ufl.edu

4. Louis E. Wright, Professor (Teaching)

   Dept. of Physics and Astronomy
   251B Clippinger Research Labs
   Ohio University, Athens, OH 45701, USA
   phone: (740) 593-1716
   e-mail: wright@ohiou.edu

5. Thomas S. Statler, Associate Professor (Teaching & Research)

   Dept. of Physics and Astronomy
   251B Clippinger Research Labs
   Ohio University, Athens, OH 45701, USA
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