

# Blagoy Rangelov

Texas State University  
Department of Physics  
601 University Drive, RFM 3240  
San Marcos, TX 78666

Phone: (512) 245-8373  
E-mail: [b\\_r239@txstate.edu](mailto:b_r239@txstate.edu)  
Website: [BlagoyRangelov.com](http://BlagoyRangelov.com)  
ORCID: [0000-0002-9282-5207](https://orcid.org/0000-0002-9282-5207)

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## EDUCATION

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- 2006–2012     **Ph.D. in Physics**, The University of Toledo, Toledo, OH  
Thesis Title: *High Mass X-ray Binaries in Nearby Star-forming Galaxies*  
Thesis Advisor: Prof. Rupali Chandar
- 2005–2006     **M.S. in Astronomy & Astrophysics**, Sofia University, Sofia, Bulgaria  
Thesis Title: *Spectroscopic Studies of the Solar Corona During the Total Solar Eclipse on March 29, 2006*
- 2001–2005     **B.S. in Physics**, Sofia University, Sofia, Bulgaria  
Thesis Title: *N-body Models of Globular Clusters*

## PROFESSIONAL EXPERIENCE

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- 2024–           **Associate Professor**, Texas State University, San Marcos, TX
- 2018–2024     **Assistant Professor**, Texas State University, San Marcos, TX
- 2016–2018     **Lecturer**, Texas State University, San Marcos, TX
- 2013–2016     **Postdoctoral Scientist**, The George Washington University, Washington, DC
- 2008–2012     **Research Assistant**, The University of Toledo, Toledo, OH
- 2008–2009     **Predoctoral Fellowship**, Harvard-Smithsonian Center for Astrophysics,  
Cambridge, MA
- 2006–2007     **Teaching Assistant**, The University of Toledo, Toledo, OH
- 2006           **Telescope Operator**, Ritter Observatory, The University of Toledo, Toledo,  
OH
- 2006           **Science Expedition** (Side, Turkey), Total Solar Eclipse on March 29, 2006  
Project: *Spectroscopic Studies of the Solar Corona*  
Bulgarian Academy of Science & Sofia University
- 1999           **Science Expedition** (Shabla, Bulgaria), Total Solar Eclipse on August 11,  
1999  
Project: *Investigating the Polarization of the Solar Corona*  
Bulgarian Academy of Science

## TXST SPACE LAB

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Founded in 2023, the Texas State Space Lab is a student-driven research hub for space technology. Hosting over 20 students from engineering, physics, and computer science, the lab integrates leadership roles in technical, software, and public outreach domains. As part of the PROVES-Five Program with NASA and Cal Poly Pomona, the lab's first CubeSat is set to launch from the ISS in late 2026, demonstrating expertise in CubeSat development and aerospace systems engineering.

## SUCCESSFUL GRANTS AND PROPOSALS

Summary: external programs with the total awarded federal funding of over \$1M (after subtracting co-investigator shares).

1. Co-PI on UNP Mission Concept (2026), \$50k, *ADAPT: Autonomous Drag-based Adaptive-Planning and Targeting – On-Orbit Reinforcement Learning for Propellant-Free Orbit Control*
2. PI on NASA MUREP MPLAN Award (2025–2026), \$50k, *STEM Diversity through CubeSat Technology*
3. Co-PI Texas State University (2023), ~\$32k, *Microcomputers and Peripherals to Support Experimental Curriculum in Upper Division Courses*, Research Enhancement Program
4. Co-I *Sloan Foundation* (2023), *Creating Equitable Pathways to STEM Graduate Education*
5. Co-I *Hubble Space Telescope* (2023), *The legacy UV survey of 28 pulsars*
6. PI NASA/ADAP (2022), ~\$286k, *Multi-wavelength Classification of X-ray sources in Spiral Galaxies*
7. Co-I *Hubble Space Telescope* (2022), *Galactic Archeology: Mining Globular Clusters for Massive Star Remains with Machine Learning*
8. PI *Chandra* (2021), ~\$93k, *Survey of Gamma-ray Pulsars*
9. Co-I *Chandra* (2020), *High-resolution Imaging and Timing of 3FGL J1016.5–6034*
10. Co-I *Chandra* (2020), *X-ray content of Galactic Fermi LAT 4FGL sources*
11. PI *Chandra* (2019), ~\$80k, *The Intermediate-age Cluster GLIMPSE-C01*
12. Co-I *XMM-Newton* (2019), *Spectral and Timing study of the gamma-ray pulsar candidate 3FGL J1016.5–6034*
13. PI Texas State University REP (2019), \$8k, *Multi-wavelength Classification of X-ray Sources in the Andromeda Galaxy*
14. PI Texas State University Faculty Startup Library Grant (2019), \$1k
15. PI *Chandra* (2018), ~\$55k, *Revealing pulsars hidden in the 3rd Fermi Catalog*
16. PI *Chandra* (2018), ~\$68k, *Multi-wavelength classification of X-ray sources in M33*
17. PI Texas State University Startup (2018), ~\$171k
18. PI Texas State University Mentor SURE (2017), \$2.5k
19. PI *Chandra* (2017), ~\$61k, *Are runaway O-star bow shocks able to accelerate cosmic rays?*
20. Co-I *Chandra* (2016), *A Deep broadband study of the diverse population of X-ray sources in M51 with Chandra and NuSTAR*
21. PI *Swift* (2015), ~\$45k, *Revealing pulsars hidden in the 3rd Fermi Catalog*
22. Co-I *XMM-Newton* (2015), *Snap-shot Survey of Fermi Pulsar Candidates*
23. Co-I *XMM-Newton* (2015), *Sleuthing for compact objects accreting from the ISM*
24. PI *Hubble Space Telescope* (2015), ~\$30k, *The intermediate-age cluster GLIMPSE-C01*
25. AAS Travel Grant (2015), ~\$1.2k, XXIX IAU General Assembly, Hawaii
26. PI *Chandra* (2014), ~\$50k, *Snap-shot survey of unidentified Fermi sources*
27. PI *XMM-Newton* (2013), ~\$42k, *Revealing pulsars hidden in the 2nd Fermi Catalogue*
28. PI *XMM-Newton* (2013), *The Nature of LS 5039*
29. PI *Chandra* (2012), ~\$40k, *Diffuse X-ray Emission From Massive Star Clusters in the Anten-*

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30. Co-I *HST* (2011), *Stellar Life and Death in M83: A Hubble–Chandra Perspective*
31. Co-I *HST* (2009), *Structural Properties of Star Clusters in M33*
32. Co-I *Chandra* (2008), *The Nature of Optical Counterparts to X-ray Binaries in M101*

#### HONORS AND AWARDS

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2022	Presidential Distinction Award for Excellence in Teaching, Texas State University
2022	COSE Awards for Excellence in Teaching, Texas State University
2020	Alumni Association Teaching Award of Honor, Texas State University
2020	Presidential Distinction Award for Excellence in Teaching, Texas State University
2019	College Achievement Award for Excellence in Service, Texas State University
2017–2020	WISE People’s Choice Award (Astronomy Club, 4 consecutive years)
2008–	American Astronomical Society member
2018–	International Astronomical Union member
2019–	American Physical Society member
2007–	Sigma Pi Sigma National Physics Honor Society
2006–2009	Stipend Enhancement Award, The University of Toledo
2002–2006	Stipend Award for Academic Excellence, Sofia University
2001	1st place National Science Competition, Bulgaria

#### PRESS

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2020	Newspaper, <i>University Star</i> : Icarus-1 CubeSat project
2017	<i>A Too-Hot Pulsar Speeding Through the Galaxy</i> , AAS NOVA and AstroBites
2017	Newspaper, <i>University Star</i> : Eclipse trip
2016	Radio, KTSW 89.9 interview
2015	<i>Pulsar Punches Hole In Stellar Disk</i> , Chandra Press Release
2014	<i>Hubble Views Stellar Genesis in the Southern Pinwheel</i> , HST News Release

#### PUBLICATIONS

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1. Ahmed, A., Dutta, A., and **Rangelov, B.**, *Unsupervised Telemetry Anomaly Detection for CubeSats Across OPSS-SAT and SatNOGS Data*, 2026, IEEE SouthEast Con.
2. Guerrero, M. and **Rangelov, B.**, *Spatial Correlation of X-Ray Sources and Star Clusters in M31*, 2026, RNAAS, 10, 93.
3. Rodríguez, L. E., Reisenegger, A., González-Caniulef, D., Petrovich, C., Pavlov, G., Guillot, S., Kargaltsev, O., and **Rangelov, B.**, *Neutron star heating vs. HST observations*, 2025, arXiv:2511.16507.
4. Marentes, E. and **Rangelov, B.**, *Investigating the Nature of X-Ray Sources in the Andromeda Galaxy Using Chandra and Hubble Data*, 2025, RNAAS, 9, 30.

5. McCarver, A. V., Maccarone, T. J., Ransom, S. M., Clarke, T. E., Giacintucci, S., Peters, W. M., Polinsky, E., Nyland, K., Gautam, T., Freire, P. C. C., and **Rangelov, B.**, *A VLITE Search for Millisecond Pulsars in Globular Clusters*, 2024, ApJ, 969, 30.
6. **Rangelov, B.**, Yang, H., Williams, B., Kargaltsev, O., Hare, J., and Martinic, K., *Chandra X-ray Observatory Observations of 13 Fermi LAT Sources*, 2023, ApJ, 961, 26.
7. Chen, S., Kargaltsev, O., Yang, H., Hare, J., Volkov, I., **Rangelov, B.**, and Tomsick, J., *Population of X-Ray Sources in NGC 3532: a Test Bed for ML Classification*, 2023, ApJ, 948, 59.
8. Yang, H., Hare, J., Kargaltsev, O., Volkov, I., Chen, S. G., and **Rangelov, B.**, *Classifying Unidentified X-ray Sources in the CSC Using a Multi-wavelength ML Approach*, 2022, ApJ, 941, 104.
9. Luitel, S. and **Rangelov, B.**, *Numerical Simulation of Compact Objects in Binary Systems Post-Supernova*, 2022, RNAAS, 6, 1.
10. Rice, J. R., **Rangelov, B.**, Prestwich, A. H., Chandar, R., Bichon, L., and Boldt, C., *X-ray binaries in M51 I: catalog and statistics*, 2021, ApJ, 922, 178.
11. Hare, J., Yang, H., Kargaltsev, O., **Rangelov, B.**, Pike, S. N., and Tomsick, J., *Chandra Observations of MAXI J1848–015*, 2021, ATel, 14499.
12. **Rangelov, B.**, Montmerle, T., Federman, S. R., Boisse, P., and Gabici, S., *Runaway O-star Bow Shocks as Particle Accelerators? The Case of AE Aur revisited*, 2019, ApJ, 885, 105.
13. Guillot, S., Pavlov, G. G., Reyes, C., Reisenegger, A., Rodriguez, L. E., **Rangelov, B.**, and Kargaltsev, O., *HST Nondetection of PSR J2144–3933: The Coldest Known Neutron Star*, 2019, ApJ, 874, 175.
14. Hare, J., Volkov, I., Kargaltsev, O., Yoines, G., and **Rangelov, B.**, *XMM-Newton and Chandra Observations of 3FGL J1016.5–6034*, 2019, ApJ, 875, 107.
15. Johns Mulia, P., Chandar, R., and **Rangelov, B.**, *Does High-density or Mass Help Star Clusters Produce XRBs?*, 2019, ApJ, 871, 122.
16. Brightman, M., et al. (incl. **Rangelov, B.**), *A Long Hard-X-Ray Look at the Dual AGN of M51 with NuSTAR*, 2018, ApJ, 867, 110.
17. Hare, J., Kargaltsev, O., and **Rangelov, B.**, *Chandra and HST Observations of GLIMPSE-C01*, 2018, ApJ, 865, 33.
18. Pavlov, G. G., **Rangelov, B.**, Kargaltsev, O., and Reisenegger, A., *Old but still hot: Far-UV detection of PSR B0950+08*, 2017, ApJ, 850, 79.
19. Kargaltsev, O., Pavlov, G. G., Klingler, N., and **Rangelov, B.**, *PWNe Created by Fast-Moving Pulsars*, 2017, J. Plasma Phys., 83, 635830501.
20. Hare, J., Kargaltsev, O., Pavlov, G. G., **Rangelov, B.**, Volkov, I., *Chandra Observations of HESS J1616–508*, 2017, ApJ, 841, 81.
21. Pannuti, T. G., Rho, J., Kargaltsev, O., **Rangelov, B.**, et al., *Observations of the SNR W28 (G6.4–0.1)*, 2017, ApJ, 839, 59.
22. **Rangelov, B.**, Pavlov, G. G., Kargaltsev, O., et al., *HST detection of PSR J2124–3358 and its FUV bow shock nebula*, 2017, ApJ, 835, 264.
23. **Rangelov, B.**, Kargaltsev, O., and Pavlov, G. G., *FUV bow shock nebula around PSR J0437–4715*, 2016, ApJ, 831, 129.

24. Klingler, N., **Rangelov, B.**, Kargaltsev, O., et al., *Deep Chandra observations of the PWN of PSR B0355+54*, 2016, ApJ, 833, 253.
25. Klingler, N., Kargaltsev, O., **Rangelov, B.**, et al., *Chandra Observations of Outflows from PSR J1509–5850*, 2016, ApJ, 828, 70.
26. Sonbas, E., **Rangelov, B.**, Kargaltsev, O., Dhuga, K., and Hare, J., *X-ray Sources in the Dwarf Spheroidal Galaxy Draco*, 2016, ApJ, 821, 54.
27. Hare, J., **Rangelov, B.**, Sonbas, E., and Kargaltsev, O., *Multi-wavelength study of HESS J1741–302*, 2016, ApJ, 816, 52.
28. Williams, B., **Rangelov, B.**, Kargaltsev, O. and Pavlov, G., *Magnesium-rich Ejecta in SNR G284.3–1.8*, 2015, ApJ, 808, L19.
29. Pavlov, G., Hare, J., Kargaltsev, O., **Rangelov, B.**, and Durant, M., *An Extended X-Ray Object from PSR B1259–63/LS2883*, 2015, ApJ, 806, 192.
30. **Rangelov, B.**, Posselt, B., Kargaltsev, O., Pavlov, G., and Hare, J., *Multi-Wavelength Study of HESS J1809–193*, 2014, ApJ, 796, 34.
31. Kargaltsev, O., **Rangelov, B.**, Hare, J., and Pavlov, G., *Chandra Imaging of Gamma-Ray Binaries*, 2014, AN, 335, 301.
32. Kargaltsev, O., **Rangelov, B.**, and Pavlov, G. G., *Gamma-ray and X-ray Properties of PWNe and Unidentified Galactic TeV Sources*, 2013, arXiv:1305.2552.
33. **Rangelov, B.**, Chandar, R., Prestwich, A. H., and Whitmore, B. C., *XRBs and Star Clusters in the Antennae*, 2012, ApJ, 758, 99.
34. Garofali, K., Converse, J. M., Chandar, R., and **Rangelov, B.**, *N-body Simulations of Low Mass Star Clusters*, 2012, ApJ, 755, 49.
35. **Rangelov, B.**, Prestwich, A. H., and Chandar, R., *The Connection Between XRBs and Star Clusters in NGC 4449*, 2011, ApJ, 741, 86.

#### BOOK CHAPTERS

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1. Kargaltsev, O., **Rangelov, B.**, and Pavlov, G., *Pulsar-wind Nebulae as a Dominant Population of Galactic VHE Sources* in “The Universe Evolution: Astrophysical and Nuclear Aspects,” 2013, NOVA Science Publisher, ISBN: 978-1628085457.

#### MENTORING AND STUDENT ACCOMPLISHMENTS

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##### Texas State University

**Postdoctoral Scientist:** Jared Rice (currently Assistant Professor at Southwestern Adventist University).

**Graduate Students (16):** 10 continued to Ph.D. programs, 2 working in industry.

**Undergraduate Students (40):** 21 continuing to graduate school, 5 working in industry (Lockheed Martin, Firefly, etc.), 4 graduated from the Honors College, 3 high-altitude balloon missions.

Since 2018 my students have presented 25 talks and poster presentations at professional conferences. Selected highlights:

2017–2022	<b>HSI STEM SURE</b> , served as mentor to 8 undergraduate students
2022–	<b>Graduate Merit Fellowship</b> , 3 students
2021–	<b>Outstanding Graduating Physics Major</b> : 3 students
2020	<b>REU UC Boulder</b> , Kennedy Farrell
2019	<b>\$10k Jacobs Grant</b> , Kayley Green-Tooney
2019	<b>\$1k Griffin Outreach Grant</b> , K. Green-Tooney
2019–	<b>Travel Grants</b> (AAS, Small Satellite Conference), 4 students
2018–	<b>H-LSAMP</b> , served as mentor to 2 undergraduate students
2018	<b>LBJ Outstanding Senior Student Award</b> , Luis Bichon

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 PROFESSIONAL SERVICE
 

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2024–	<b>Graduate Scholarship Committee</b> , Texas State University
2023, 2025	<b>Peer-Review Panelist</b> , <i>NASA FINESST</i>
2021–	<b>Peer-Review Panelist</b> , <i>James Webb Space Telescope</i>
2019–2022	<b>Chandra Users Committee</b> , <i>Chandra X-ray Observatory</i>
2020	<b>Peer-Review Panelist</b> , <i>NuSTAR</i>
2020	<b>Peer-Review Panelist</b> , <i>NSF Division of Astronomical Sciences</i>
2016–2020	<b>Curriculum Development Committee Member</b> , Texas State University
2016–	<b>Peer-Review Panelist</b> , <i>Hubble Space Telescope</i>
2016–	<b>Referee</b> , the <i>Astrophysical Journal</i> , <i>MNRAS</i> , <i>Nature Astronomy</i>
2014, 2015	<b>Peer-Review Panelist</b> , <i>Fermi Gamma-Ray Space Telescope</i>
2014, 2016	<b>Conference Co-Organizer</b> , DC/MD/VA Astrophysics Summer Meeting
2014–	<b>Peer-Review Chair/Panelist</b> , <i>Chandra X-ray Observatory</i>
2008	<b>Facilitator</b> , <i>Chandra X-ray Observatory</i>

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 TEACHING
 

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**Texas State University**

2017–	PHYS 3313 Astrophysics, ~20 students.
2017–	PHYS 4311 Advanced Physics Laboratory, ~20 students.
2016–	PHYS 1430 Mechanics, ~50 students.

**The George Washington University**

2014	ASTR 1002 Origins of the Cosmos, ~60 students, SCALE-UP (Co-Instructor).
2014–2016	Guest Lecturer: PHYS 1011, PHYS 1021, ASTR 1001, ASTR 8150, ASTR 2161.

**The University of Toledo**

- 2009–2012      Guest Lecturer: ASTR 2010 The Solar System, ASTR 2340 New Frontiers in Astronomy.
- 2007            Recitation Instructor, PHYS 2080 General Physics II.
- 2006–2007      Lab Instructor: ASTR 1010, PHYS 2130, PHYS 2140.

**PUBLIC OUTREACH**

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Educating the public about physics and astronomy has been a strong interest during my career. Below is a short list of selected outreach activities.

**Texas State University**

- 2020–            **Faculty Advisor**, Society for Space Exploration.
- 2017–            **Organizer**, Portable PVC-pipe Planetarium for outreach events.
- 2016–            **Astronomy Club Advisor** (Founder). WISE People’s Choice Award (2017–2020).
- 2016–            **Texas State Observatory**: running and maintaining the Observatory; weekly public observing sessions (~25 visitors/evening).
- 2016–            **Family Weekend** observing sessions (~200+ attendees each year).
- 2017            **Total Solar Eclipse**, organized observing trip to Marshall, MO (12 students).
- 2016–            **School visits and science demonstrations**: Hernandez Elementary, Katherine Anne Porter Charter School (Wimberley, TX), IDEA school, scout troops (BSA Troop 112, Girl Scout Troop 43105).
- 2015–2020      **USA Astronomy and Astrophysics Olympiad**, Coach and test writer.

**The George Washington University**

- 2014, 2016      **Presenter**, Astronomy Night at the National Mall, DC (~7,000 attendees). Physics experiments and public observing.

**Sofia University & NAOP “Giordano Bruno”**

- 2001–2006      Preparing students for National Astronomy Olympiads; monthly public observing.
- 2001–2003      **Invited Lecturer**, Summer School in Astronomy, NAO Rozhen.
- 1996–2001      Planetarium Assistant (Volunteer); public observing sessions; promoting Astronomy in local media (TV, radio, newspapers).

**WORKSHOPS AND TRAINING**

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1. Mentor Training STEM Undergraduate Research Experience, 2017, San Marcos, TX.
2. New Faculty Workshop, 2017, College Park, MD.
3. STEM Faculty Learning Community, 2017, San Marcos, TX.
4. AAPT Computational Workshop, 2017, San Antonio, TX.
5. International Learning Assistant Conference, 2016, Boulder, CO.
6. *Future Space-based Gamma-ray Observatories*, 2015, NASA Goddard Space Flight Center.
7. Alma Data Reduction Workshop, 2014, Space Telescope Science Institute, Baltimore, MD.

8. Virtual Observatory Workshop, 2011, Ann Arbor, MI.
9. *The Future of Dust Astrophysics: Origins and Evolution of Dust*, 2010, Toledo, OH.
10. Telescope Workshop, 2006, National Observatory Rozhen, Bulgaria.
11. Evolution of Galaxies and Their Large-scale Environment, 2006, Bad Honnef, Germany.

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#### SELECTED TALKS AND POSTERS

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1. *Compact Stars Speeding Through the Galaxy*, talk, 2020, Texas Lutheran University.
2. *Machine-Learning Methods in Astrophysics*, talk, 2019, Texas State University CS Dept.
3. *Investigating the High Energy Universe with ML*, talk, 2019, Southwestern University.
4. *Unveiling X-ray Source Populations with ML*, talk, 2019, Building Astronomy in Texas Symposium, UT Dallas.
5. *Compact Stars Speeding Through the Galaxy*, talk, 2018, Texas State University.
6. *The Peer Review Process*, talk, 2017, STEM SURE, Texas State University.
7. *Unveiling the Most Exotic Sources in the Universe*, colloquium, 2016, Texas State University.
8. *Unveiling X-ray Source Populations with ML*, invited talk, 2015, Harvard-Smithsonian CfA.
9. *Spectral properties of the Vela PWN*, 2015, IAU General Assembly, Honolulu, HI.
10. *The FUV bow shock of PSR J0437–4715*, 2015, IAU General Assembly, Honolulu, HI.
11. *SNR G284.3–1.8 and 1FGL J1018.6–5856*, talk, 2015, NewCompStar, Budapest.
12. COSPAR Scientific Assembly, 2014, Moscow, Russia.
13. *FUV bow shock of PSR J0437–4715*, talk, 2014, Physics of Neutron Stars, St. Petersburg.
14. *Gamma-ray and X-ray Properties of PWNe*, 2014, AAS 223, #153.22, Washington DC.
15. *HESS J1809–193*, talk, 2013, TeV Particle Astrophysics, Irvine, CA.
16. *PWNe as a Dominant Population of Galactic VHE Sources*, talk, 2013, TeVPA, Irvine.
17. *HMXBs in Nearby Star-forming Galaxies*, 2012, XRBS: 50 Years Since Sco X-1, Boston.
18. *XRBS and Star Clusters in the Antennae*, 2011, AAS 218, #410.15, Boston.
19. *HMXBs in Nearby Starburst Galaxies*, 2009, AAS 213, #445.06, Long Beach.
20. *Low-Dispersion Eclipse Spectroscopy During TSE 2006*, 2006, 5th Bulgarian-Serbian Conf.

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#### OTHER PUBLICATIONS

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1. *Crew Exploration Vehicle Apollo on Steroids*, 2006, aviation magazine *Club Wings*.
2. *Enlargement of the Earth's shadow during Total Lunar Eclipses*, 2002, Astronomy newspaper *Telescope*.
3. *Measurements of the color of the Moon surface during Total Lunar Eclipses*, 2001, Astronomy newspaper *Telescope*.
4. *The Beginning*, sci-fi short story, 2000, Astronomy magazine *Andromeda*.
5. Variable star light curves, 1998, Bulletin de l'Association Française des Observateurs d'Étoiles Variables.