

PhD

PRUZHINSKAYA

Maria Victorovna



PERSONAL DATA

PLACE AND DATE OF BIRTH: Russia | 23 July 1988
NATIONALITY: Russian
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EXPERIENCE

NOV 2015– <i>Current</i>	Laboratoire de Physique Corpusculaire, Université Clermont Auvergne, Université Blaise Pascal, CNRS/IN2P3, Clermont-Ferrand, France Post-doctoral researcher
MAR 2015–MAY 2015	Côte d’Azur Observatory, Nice, France (3-month Mechnikov Scholarship) Researcher
SEP 2014– <i>Current</i>	Sternberg Astronomical Institute of Lomonosov Moscow State University, Moscow, Russia Researcher
JUN 2009–MAR 2015	Member of project «MASTER Global robotic net» (http://observ.pereplet.ru , http://master.sai.msu.ru/en/) Researcher
MAR 2010–SEP 2014	Sternberg Astronomical Institute of Lomonosov Moscow State University, Space Monitoring Laboratory, Moscow, Russia Leading engineer
JUL–AUG 2008	Practice at the Special Astrophysical Observatory (SAO RAS), Caucasus Participation in observations at BTA-6, Zeiss-1000 and RATAN-600 telescopes.
JUL–AUG 2006	Practice at the Special Astrophysical Observatory (SAO RAS), Caucasus Theoretical and practical courses on astrophysics, spectral analysis, instrumentation and observational methods.

EDUCATION

- 2011–2014 Doctoral programme, **Lomonosov Moscow State University**, Moscow
Speciality: Astrophysics and stellar astronomy
PhD thesis: «Supernovae, gamma-ray bursts and accelerating expansion of the Universe» | Advisor: Prof. Vladimir LIPUNOV
- 2005–2011 Specialist degree programme in ASTRONOMY, **Lomonosov Moscow State University**, Moscow
Specialization: Astrophysics | *degree with honours*
Term paper: «Spectral investigation of bright stars of association Cas OB7»
| Advisor: Prof. Alexey RASTORGUEV
Thesis: «Type Ia supernovae and energy of cosmic vacuum»
| Advisor: Prof. Vladimir LIPUNOV
- [| Detailed List of Exams](#)
- 2001–2005 **Academic Lyceum of Syktyvkar State University**, Syktyvkar, graduated with honours

MAIN SCIENTIFIC INTERESTS

1. Type Ia Supernovae: photometric properties (problem of the «standard candle» hypothesis, standardization procedures), Hubble diagrams, observational cosmology, dark energy.
2. Supernovae stars: physics, optical photometry and polarimetry, light curve modeling, K-correction, spectra, event rate.
3. Cosmology: dark energy.
4. Robotic observatories. Synoptic survey. Optical photometry and polarimetry.
5. Evolution and star formation history in the Universe.
6. Stellar astrophysics. Binary stars population synthesis.
7. Gamma-ray bursts, fast radio bursts.

GRANTS AND SCHOLARSHIPS

- 2015 Mechnikov Scholarship of the Embassy of France for researchers, 3-month programme
- 2015 Scholarship of the Lomonosov Moscow State University for young lecturers and researchers
- 2013 Grant of Russian Foundation For Basic Research 14-02-31546, co-investigator
- 2013 Winner of the contest works of talented students and young MSU scientists established by O.V. Deripaska
- 2013 Scholarship of the President of Russia for PhD students
- 2013 Scholarship of the non-profit Dynasty Foundation, Support Program for Physicists – Graduate Students
- 2012 Grant in the form of a subsidy from the Ministry of Education and Science of the Russian Federation (agreement of August 27, 2012, No. 8415), co-investigator
- 2011 Grant of Russian Foundation For Basic Research 11-02-09450-mob_z, leader
- 2011 Scholarship of the non-profit Dynasty Foundation, Support Program for Physicists – Students
- 2009 Grant of Ministry of Education and Science of the Russian Federation (state contract No. 02.740.11.0249), co-investigator

LANGUAGES

- RUSSIAN: Native
- ENGLISH: Fluent, including professional vocabulary
- FRENCH: Intermediate (B1)

COMPUTER AND PROGRAMMING SKILLS

- Astronomy soft: radiation-hydrodynamics code STELLA (Blinnikov et al.), MESA stellar evolution code, python package SNooPy for the analysis Type Ia supernovae (Burns et al.), MaxIm DL, Aladin Sky Atlas, SAOImage DS9
- General: MATLAB, Gnuplot, LINUX, Ubuntu, L^AT_EX, Open office & MS Office (Excel, Word, PowerPoint etc.), Photoshop, Illustrator, GIMP, HTML, Python

ORGANIZATION OF CONFERENCES AND SEMINARS

1. Member of the Local Organizing Committee of the Conference dedicated to 100 years since the birth of Ya.B. Zel'dovich «YaB-100», SAI MSU, Moscow, Russia, 20-21 March 2014.
2. Member of the Local Organizing Committee of the International Workshop MASTER Global Robotic Net devoted to the 10th Anniversary MASTER project, SAI MSU, Moscow, Russia, 13-18 August 2012.
3. Secretary of Ya. B. Zeldovich All-Moscow Seminar of Astrophysicists (2011-2015), SAI MSU, Moscow, Russia.

TEACHING ACTIVITY

1. Co-advising of Master 2 thesis «Study of the influence of Type Ia supernovae environment on the Hubble diagram».
2. Leading the laboratory works «Photometry of Type Ia SNe. Light curves standardization procedures» & «MASTER Survey mode: supernova search» for 3 and 4 years students of astronomical department (SAI MSU)

PARTICIPATION IN CONFERENCES AND SCHOOLS

1. Oral talk «Pure Supernovae and accelerating expansion of the Universe» on the OCA seminar (Côte d'Azur Observatory, Nice, France, March 2015).
2. Oral talk «The optical identification of the *Fermi* GBM GRB 140801A as an event with poorly defined location», Conference «Physics of the Cosmos» (Kourovka Astronomical Observatory, Ural, Russia, February 2015).
3. On-line oral talk «Scenario Machine: Fast Radio Bursts, short GRBs and LIGO silence» on the Seminar of a working science group of the LIGO Scientific Collaboration (Texas, USA, 31 October 2014).
4. Oral talk «Scenario Machine: fast radio bursts, short gamma-ray bursts and LIGO silence», Ioffe Workshop on GRBs and other transient sources: 20 Years of Konus-Wind Experiment (Ioffe Institute, St.Petersburg, Russia, 2014).
5. Poster «Fast radio bursts, kilonovae and MASTER synoptic survey», CAASTRO Annual Scientific Conference SUPERNOVAE IN THE LOCAL UNIVERSE: CELEBRATING 10,000 DAYS OF SUPERNOVA 1987A (Coffs Harbour, New South Wales, Australia, 2014).
6. Oral talk «Scenario Machine: Fast Radio Bursts, Short GRB, Dark Energy and LIGO silence», The 40th COSPAR Scientific Assembly (Moscow, Russia, 2014).
7. Oral talk «Polarization observations with MASTER Global robotic Net», Conference «Physics of the Cosmos» (Kourovka Astronomical Observatory, Ural, Russia, 2014).
8. Oral talk «Cosmological fast radio bursts and neutron stars mergers», Scientific session of National Research Nuclear University MEPhI (MEPhI, Moscow, Russia, 2014).
9. Oral talk «Polarization observations with the MASTER Global Robotic Net», 2nd Extreme Universe Laboratory Workshop on Gamma-Ray «Gamma Ray Bursts, New Missions to New Science» (Skobeltsyn Institute, Lomonosov MSU, Moscow, Russia, 2013).
10. Poster «Type Ia Supernovae», Conference «Young scientists of Russia» («Dynasty» Foundation, Moscow, Russia, 2013).
11. Oral talk «Pure supernovae Ia and dark energy», International Workshop MASTER Global Robotic Net (SAI MSU, Moscow, Russia, 2012).
12. Oral talk «Pure supernovae Ia and dark energy», International School Astrophysics (Teramo, Italy, 2012).
13. Oral talk «Unique bright supernova in NGC 2857», Ya. B. Zeldovich All-Moscow Seminar of Astrophysicists (SAI MSU, Moscow, Russia, 2012).
14. Oral talk «Pure Supernovae and Accelerated Expansion of the Universe», Ya. B. Zeldovich All-Moscow Seminar of Astrophysicists (SAI MSU, Moscow, Russia, 2011).
15. Participation in school «Observational and theoretical cosmology» (Nizhny Arhiz, Caucasus, Russia, 2011).
16. Oral talk «Pure Supernovae and dark energy», XVIII International Conference of students, PhD students and young scientists «Lomonosov» (Lomonosov MSU, Moscow, Russia, 2011).
17. Oral talk «Pure Supernovae and Accelerated Expansion of the Universe», Conference «High Energy Astrophysics-2011» (IKI RAS, Moscow, Russia, 2011).
18. Oral talk «Pure Supernovae and Accelerated Expansion of the Universe», Conference of Young Scientists of CIS Countries «Fifty years of Cosmic Era: Real and Virtual Studies of the Sky» (Yerevan, Armenia, 2011).

19. Oral talk «Pure supernovae Ia and dark energy», IAU Symposium 281 «Binary Paths to type Ia Supernovae explosions» (Padova, Italy, 2011).

INTERESTS AND ACTIVITIES

Reading, History

Painting, Traveling, Hiking

LIST OF PAPERS IN REFEREED JOURNALS

1. Henne V., **Pruzhinskaya M. V.**, Rosnet, P., et al., «The influence of host galaxy morphology on the properties of Type Ia supernovae from the JLA compilation», *New Astronomy*, 51, 43-50, 2017.
2. Moriya T. J., **Pruzhinskaya M. V.**, Ergon M., Blinnikov S. I., «On the nature of rapidly fading Type II supernovae», *MNRAS*, vol. 455, 423, 2016.
3. Lipunov V.M., Gorosabel J., **Pruzhinskaya M. V.**, et al., «The optical identification of events with poorly defined locations: the case of the Fermi GBM GRB 140801A», *MNRAS*, vol. 455, 712, 2016.
4. Lipunov V. M., **Pruzhinskaya M. V.**, «Scenario Machine: Fast Radio Bursts, Short GRB, Dark Energy and LIGO silence», *MNRAS*, vol. 440, 1193-1199, 2014.
5. **Pruzhinskaya M. V.**, Krushinsky V. V., Lipunova G. V., et al., «Optical polarization observations with the MASTER robotic net», *New Astronomy*, 29, 65-74, 2014.
6. Lipunov V. M., Panchenko I. E., **Pruzhinskaya M. V.**, «The mechanism of Supernova Ia explosion in elliptical galaxies», *New Astronomy*, 16, 250-252, 2011.
7. **Pruzhinskaya M.V.**, Gorbovskey E.S., Lipunov V.M., «Pure» supernovae and accelerated expansion of the Universe», *Pis'ma v Astronomicheskii Zhurnal (Astronomy Letters)*, 37, N9, 1-7, 2011.
8. Tsvetkov D. Yu., Balanutsa P. V., ..., **Pruzhinskaya M. V.**, et al., «Photometric observations of SN 2009nr», *Pis'ma v Astronomicheskii Zhurnal (Astronomy Letters)*, 37, N11, 837-845, 2011.
9. Gorbovskey E. S., Lipunov V. M., Kornilov V. G., ..., **Pruzhinskaya M. V.**, et al., «The MASTER-II network of robotic optical telescopes. First results», *Astronomicheskii Zhurnal (Astronomy Reports)*, 90, N4, 267-321, 2013.

OTHERS

1. **Pruzhinskaya M.V.**, Lisakov S.M., «How supernovae became the basis of observational cosmology», *Journal of Astronomical History and Heritage*, 19(2), 203-215, 2016.

LIST OF PAPERS IN NON-REFEREED JOURNALS

Proceedings:

1. **Pruzhinskaya M. V.**, Gorbovskey E. S., Lipunov V. M., «Pure Supernovae and Dark Energy», *Binary Paths to Type Ia Supernovae Explosions*, Proceedings of the International Astronomical Union, IAU Symposium, Volume 281, p. 17-20, CAMBRIDGE UNIVERSITY PRESS (CUP), 2011.
2. **Pruzhinskaya M.V.**, «Supernovae Ia and cosmic energy of vacuum», Proceedings in «Lomonosov-2011», section «Physics», volume 1, Faculty of Physics MSU, Moscow, pages 25-27, 2011.
3. **Pruzhinskaya M. V.**, Gorbovskey E. S., Lipunov V. M., «Pure» Supernovae and Accelerated Expansion of the Universe» "Fifty years of Cosmic Era: Real and Virtual Studies of the Sky", Proceedings of the Conference of Young Scientists of CIS Countries, held 21-25 Nov 2011, in Yerevan, Armenia. Editors: A.M. Mickaelian, O.Yu. Malkov, N.N. Samus. Yerevan: National Academy of Sciences of the Republic of Armenia (NAS RA), p. 209-209, 2012.
4. **Pruzhinskaya M. V.**, Krushinski V. V., Lipunova G. V., Gorbovskey E. S., Lipunov V. M., «Polarization observations with the MASTER Global Robotic Net», Abstracts of the Workshop «Gamma-Ray Bursts: New Missions to New Science», Extreme Universe Laboratory Skobeltsyn Institute of Nuclear Physics Lomonosov MSU, Moscow, p. 18-24, 2013.

5. **Pruzhinskaya, Maria**, Lipunov, Vladimir, 40th COSPAR Scientific Assembly. Held 2-10 August 2014, in Moscow, Russia, Abstract E1.17-28-14, «Scenario Machine: Fast Radio Bursts, Short GRB, Dark Energy and LIGO silence», 2014.

Telegrams:

Electronic publications in ATel (The Astronomer's telegram, <http://www.astronomerstelegram.org/>) and GCN (Gamma-ray Coordinates Network, http://gcn.gsfc.nasa.gov/gcn3_archive.html)

1. Gress, O.; Lipunov, V.; Gorbovskoy, E.; Tiurina, N.; Balanutsa, P.; Denisenko, D.; Kuznetsov, A.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6976 «MASTER-SAAO Detection of an Optical Transient with the Fast Variability».
2. Balanutsa, P.; Lipunov, V.; Gorbovskoy, E.; Tiurina, N.; Denisenko, D.; Kuznetsov, A.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6967 «MASTER Detection of Two Cataclysmic Variables in One Image».
3. Gress, O.; Balanutsa, P.; Lipunov, V.; Gorbovskoy, E.; Tiurina, N.; Denisenko, D.; Kuznetsov, A.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6966 «Two Cataclysmic Variables discovered by MASTER».
4. Shumkov, V.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6951 «Photometry of the MASTER OT J004207.99+405501.1 = M31N 2015-01a Bright Nova in Andromeda Galaxy».
5. Balanutsa, P.; Lipunov, V.; Gorbovskoy, E.; Tiurina, N.; Denisenko, D.; Kuznetsov, A.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6946 «Very Bright OT detected by MASTER».
6. Gress, O.; Lipunov, V.; Gorbovskoy, E.; Tiurina, N.; Denisenko, D.; Kuznetsov, A.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6931 «New CV detected by MASTER-SAAO».
7. Shumkov, V.; Lipunov, V.; Gorbovskoy, E.; Tiurina, N.; Denisenko, D.; Kuznetsov, A.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6927 «OT detected by MASTER-SAAO during Inspection Two Fermi GRB».
8. Balanutsa, P.; Lipunov, V.; Denisenko, D.; Gorbovskoy, E.; Tiurina, N.; Kuznetsov, A.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6918 «Unusual Flaring Object in Taurus detected by MASTER».
9. Shumkov, V.; Lipunov, V.; Gorbovskoy, E.; Tiurina, N.; Balanutsa, P.; Kuznetsov, A.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6911 «Possible Nova in Andromeda detected by MASTER».
10. Vladimirov, V.; Zubareva, A.; Lipunov, V.; Gorbovskoy, E.; Tiurina, N.; Balanutsa, P.; Kuznetsov, A.; **Pruzhinskaya, M.**, et al., 2015, The Astronomer's Telegram 6910 «Blue MASTER OT J020844.29+481923.0 Detection».
11. Balanutsa, P.; Denisenko, D.; Lipunov, V.; Gorbovskoy, E.; **Pruzhinskaya, M.**, et al., 2014, The Astronomer's Telegram 6799 «MASTER Discovery of a Possible Supernova in PGC 1397065».
12. Shumkov, V.; Denisenko, D.; Lipunov, V.; Gorbovskoy, E.; **Pruzhinskaya, M.**, et al., 2014, The Astronomer's Telegram 6745 «MASTER Detection of New Flare of QSO NVSS J075043+790917 During the Fermi GRB Error Box Inspection».
13. Balanutsa, P.; Shumkov, V.; Denisenko, D.; Lipunov, V.; Gorbovskoy, E.; **Pruzhinskaya, M.**, et al., 2014, The Astronomer's Telegram 6693 «Flare Star and New Cataclysmic Variable discovered by MASTER».
14. Shumkov, V.; Denisenko, D.; Lipunov, V.; Gorbovskoy, E.; **Pruzhinskaya, M.**, et al., 2014, The Astronomer's Telegram 6687 «Possible Supernova in Six-degree Field discovered by MASTER».
15. Tiurina, N., **Pruzhinskaya, M.**, et al., 2014, The Astronomer's Telegram 6632 «The OT discovery during FERMI LAT GRB141028A observations».
16. Shumkov, V., Denisenko, D., Lipunov, V., Tiurina, N., Balanutsa, P., Gorbovskoy, E., Kornilov, V., **Pruzhinskaya, M.**, et al., 2014, The Astronomer's Telegram 6544 «Optical Flare from Pan-STARRS PSN PS1-13eet detected by MASTER».
17. Ivanov, K., Yazev, S., Budnev, N. M., Gress, O., Chuvalaev, O., Poleshchuk, V. A., Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2015, GRB Coordinates Network 17487 «GRB 150222A: MASTER early optical observations».
18. Ivanov, K., Yazev, S., Budnev, N. M., Gress, O., Chuvalaev, O., Poleshchuk, V. A., Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2015, GRB Coordinates Network 17456 «GRB 150212A: MASTER optical observations».

19. Gres, O., Ivanov, K., Yazev, S., Budnev, N. M., Chuvalaev, O., Poleshchuk, V. A., Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2015, GRB Coordinates Network 17446 «GRB 150210A: MASTER SN detection during LAT error box inspection».
20. Ivanov, K., Yazev, S., Budnev, N. M., Gres, O., Chuvalaev, O., Poleshchuk, V. A., Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2015, GRB Coordinates Network 17433 «GRB 150211A: MASTER early optical observations».
21. Gorbovskey, E., Lipunov, V., Balanutsa, P., Denisenko, D., **Pruzhinskaya, M.**, et al., 2015, GRB Coordinates Network 17299 «GRB 150110A: MASTER inspection».
22. Buckley, D., Potter, S., Kniazev, A., Kotze, M., Gorbovskey, E., Lipunov, V., Tyurina, N., Balanutsa, P., Denisenko, D., **Pruzhinskaya, M.**, et al., 2015, GRB Coordinates Network 17279 «GRB 150103A: MASTER optical observations».
23. Gorbovskey, E., Lipunov, V., Balanutsa, P., Denisenko, D., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 17259 «GRB 141229A: Deep MASTER inspection».
24. Buckley, D., Potter, S., Kniazev, A., Kotze, M., Gorbovskey, E., Lipunov, V., Tyurina, N., Balanutsa, P., Denisenko, D., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 17245 «GRB 141225A: MASTER-SAAO OT light curve».
25. Buckley, D., Potter, S., Kniazev, A., Kotze, M., Gorbovskey, E., Lipunov, V., Tyurina, N., Balanutsa, P., Denisenko, D., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 17237 «GRB 141225A: MASTER-SAAO first OT detection».
26. Buckley, D., Potter, S., Kniazev, A., Gorbovskey, E., Lipunov, V., Balanutsa, P., Denisenko, D., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 17224 «GRB 141222A: First MASTER-SAAO optical observation».
27. Gres, O., Ivanov, K., Yazev, S., Budnev, N. M., Poleshchuk, V. A., Gorbovskey, E., Lipunov, V., Denisenko, D., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 17162 «GRB 141212A: MASTER early optical observations».
28. Vladimirov, V., Gorbovskey, E., Denisenko, D., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 17154 «GRB141208.63: MASTER OT Detection During the Fermi Error Box inspection».
29. Ivanov, K., Yazev, S., Budnev, N. M., Gres, O., Chuvalaev, O., Shumkov, V., Gorbovskey, E., Denisenko, D., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 17095 «GRB141124A: MASTER Detection of New Flare of QSO NVSS J075043+790917 During the Fermi Error Box inspection».
30. Ivanov, K., Yazev, S., Budnev, N. M., Gres, O., Chuvalaev, O., Poleshchuk, V. A., Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16999 «GRB 141031B: MASTER early optical observations».
31. Gorbovskey, E., Lipunov, V., Tyurina, N., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16972 «GRB 141028A: MASTER OT candidate detection».
32. Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16958 «GRB 141026A: MASTER early optical observations».
33. Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16957 «GRB 141026A: MASTER early optical observations».
34. Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16875 «GRB 140930B: MASTER early possible OT detection».
35. Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16871 «GRB 140930A/MAXI J2259+524: MASTER optical observations».
36. Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16858 «GRB 140930B: MASTER early optical observations».
37. Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16806 «GRB 140907A: MASTER optical observations».
38. Tyurina, N., Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16745 «Fermi TRIGGER NUM 430645968: MASTER OT inside error box».
39. Tyurina, N., Lipunov, V., Gorbovskey, E., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16741 «Fermi TRIGGER NUM 430583595: MASTER OT 20 hours later».
40. Tyurina, N., Lipunov, V., Gorbovskey, E., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16740 «Fermi TRIGGER NUM 430583595: MASTER OT JR011101.13+603337.5 detection».
41. Lipunov, V., Gorbovskey, E., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16720 «Fermi trigg num 430148973: bright OT inside large error box».
42. Ivanov, K., Yazev, S., Budnev, N. M., Gres, O., Chuvalaev, O., Poleshchuk, V. A., Gorbovskey, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16552 «GRB 140709B: MASTER optical observation».

43. Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16507 «GRB 140629A: MASTER optical observations».
44. Gorbovskoy, E., Krushinski, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates 16500 «GRB 140629A: MASTER-Net preliminary light curve».
45. Yurkov, V., Sergienko, Yu., Varda, D., Sinyakov, E., Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16478 «GRB 140629A: MASTER OT detection».
46. Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates 16381 «GRB 140610A: MASTER optical observations».
47. Vladimirov, V., Balanutsa, P., Gorbovskoy, E., Lipunov, V., ..., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16312 «GRB 140521A: MASTER optical observations».
48. Yurkov, V., Sergienko, Yu., Varda, D., Sinyakov, E., Ivanov, K., Yazev, S., Budnev, N. M., Gres, O., Chuvalaev, O., Poleshchuk, V. A., Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16074 «GRB 140402A: MASTER optical observations».
49. Ivanov, K., Yazev, S., Budnev, N. M., Gres, O., Chuvalaev, O., Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates 16043 «GRB 140320D: MASTER optical observations».
50. Yurkov, V., Sergienko, Y., Varda, D., Sinyakov, E., Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 16009 «GRB 140320C: MASTER optical observations».
51. Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 15983 «GRB 140311C: MASTER optical observations».
52. Yurkov, V., Sergienko, Yu., Varda, D., Sinyakov, E., Ivanov, K., Yazev, S., Budnev, N. M., Gres, O., Chuvalaev, O., Poleshchuk, V. A., Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 15981 «GRB 140311C: MASTER before, during and after trigger optical observations».
53. Ivanov, K., Yazev, S., Budnev, N. M., Gres, O., Chuvalaev, O., Poleshchuk, V. A., Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 15960 «GRB 140311B: final MASTER OT light curve».
54. Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 15948 «GRB 140311B: MASTER OT light curve (fwd)».
55. Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 15946 «GRB 140311A: MASTER early optical observations».
56. Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 15932 «GRB 140304A: MASTER OT light curve».
57. Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2014, GRB Coordinates Network 15914 «GRB 140304A: MASTER OT detection».
58. Lipunov, V., **Pruzhinskaya, M.**, Gorbovskoy, E., et al., 2014, GRB Coordinates Network 15881 «GRB 140219A: the confirmation of the brightening SDSS J102406.41+062937.6 star».
59. Lipunov, V., **Pruzhinskaya, M.**, Gorbovskoy, E., et al., 2014, GRB Coordinates Network 15879 «GRB 140219A: MASTER optical brightening inside XRT-5 error box detection».
60. Denisenko, D., **Pruzhinskaya, M.**, Lipunov, V., et al., 2013, The Astronomer's Telegram 5600 «Possible pure SN Ia near PGC 60984 detected by MASTER».
61. Grigoreva, E., Krushinsky, V., **Pruzhinskaya, M.**, et al., 2013, The Astronomer's Telegram 5588 «MASTER polarization measurements of of the quasar CGRaBSJ0211+1051».
62. Balanutsa, P., Denisenko, D., Gorbovskoy, E., Lipunov, V., **Pruzhinskaya, M.**, et al., 2013, The Astronomer's Telegram 5555 «The bright OT discovered in Andromeda direction».
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70. Gareeva, D., Lipunov, V., Gorbovskey, E.,..., **Pruzhinskaya, M.**, et al., 2011, The Astronomer's Telegram 3823 «Short Bright MASTER OT114444.53 +323011.3 detection and 6-m telescope follow up deep image».

Specialist in ASTRONOMY

Grades

EXAM	CREDIT HRS	MARK
History of Russia	136	excellent
World history and culture	118	passed
Psychology	60	excellent
Pedagogy	60	excellent
Philosophy	272	excellent
Economics	72	passed
English language	340	good
Physical training	408	passed
Mechanics	162	good
Molecular physics	144	excellent
Electricity and magnetism	180	good
Optics	184	excellent
Atomic physics	192	good
Nuclear and particle physics	126	excellent
General physics practicum	344	passed
Mathematical analysis	588	excellent
Analytic geometry	108	good
Linear algebra	100	good
Theory of complex variable functions	126	good
Differential equations	112	excellent
Integral equations and calculus of variations	80	excellent
Probability theory and mathematical statistics	144	excellent
Programming and informatics	278	passed
Numerical methods in physics	64	excellent
Chemistry	232	excellent
Theoretical mechanics	250	excellent
Electrodynamics	225	excellent
Quantum theory	236	excellent
Thermodynamics and statistical physics	236	excellent
Methods of mathematical physics	170	good
History and methodology of astronomy	72	excellent
Radiophysics	64	excellent
Radioelectronics practicum	16	passed
Foundations of mathematical modelling	72	good
Life safety	36	passed
History and theory of religion	54	passed
Method of observation data processing	72	passed
General astronomy	138	excellent
Spherical astronomy	64	passed
Galactic astronomy	80	excellent
Astrometry	54	excellent
General astrophysics	102	passed
Practical astrophysics	48	passed
Celestial mechanics	72	excellent
Geophysics and planetary physics	112	excellent
Gravimetry	72	passed
Special astronomy practicum	276	passed
Specialization laboratory	266	passed
Active galactic nuclei and quasars	48	excellent
Astronomical optics	48	excellent
Astronomical databases	54	excellent
High energy astrophysics	48	passed
Astrophysics of neutron stars and black holes	48	excellent
Internal structure and evolution of stars	54	excellent
Gravitational measurements	54	passed
Stellar clusters	64	passed
Emission in relativistic astrophysics	48	passed
Foundations of astrophotometry	64	passed
Plasma astrophysics	64	passed
Theoretical astrophysics (part 1)	54	good
Theoretical astrophysics (part 2)	48	excellent
Physics of galaxies	72	passed
Elements of stellar dynamics	54	excellent
Total	8293	