

Oleh PETRUK

LIST OF REFEREED PUBLICATIONS

(07.12.2015)

Statistics

Total citations: 270 (Web of Science Core Collection)

262 (Scopus)

354 (Astrophysics Data System)

433 (Google Scholar)

h index 10 (Web of Science Core Collection)

10 (Scopus)

12 (Google Scholar)

1. O. Petruk, T. Kuzyo, V. Beshley, Post-adiabatic supernova remnants in the interstellar magnetic field. Parallel and perpendicular shocks // Monthly Notices of the Royal Astronomical Society. – 2015. – accepted. – available at [<http://arxiv.org/abs/1511.06156>]
2. O. Petruk, Particle acceleration at shocks. Stationary solutions of kinetic equation (comprehensive review, in Ukrainian) // Journal of Physical Studies. – 2014. – v. 18, part 1. – id. 1901 (18 p.) [<http://physics.lnu.edu.ua/jps/2014/1/pdf/1901-18.pdf>]
3. Orlando S., Bocchino F., Miceli M., Petruk O., Pumo M. Clumping of ejecta and accelerated cosmic rays in the evolution of type Ia SNRs // Supernova Environmental Impacts. Proceedings of the International Astronomical Union, IAU Symposium, 2014, Volume 296, pp. 397-398 [<http://adsabs.harvard.edu/abs/2014IAUS..296..397O>]
4. V. Beshley, Ye.Vovk, D.Malyshev, V.Marchenko, O.Petruk, V.Savchenko, D.Iakubovsky, Cosmic Gamma-Ray Sources and Prospects of Their Observations with International Cosmic Observatory Gamma-400 (review, in Ukrainian) // Journal of Physical Studies. – 2013. – v.17, part 2. – id.2901 (21 p.) [<http://physics.lnu.edu.ua/jps/2013/2/pdf/2901-21.pdf>]
5. O.Petruk, V.Beshley, Interactions of Particles Accelerated in Supernova Remnants. Gamma-Ray Emission (comprehensive review, in Ukrainian) // Journal of Physical Studies. – 2013. – v. 17, part 1. – id. 1901 (24 p.) [<http://physics.lnu.edu.ua/jps/2013/1/pdf/1901-24.pdf>]
6. Orlando, S.; Bocchino, F.; Miceli, M.; Petruk, O.; Pumo, M. L. Role of ejecta clumping and back-reaction of accelerated cosmic rays in the evolution of Type Ia supernova remnants // Astrophysical Journal – 2012. – V. 749. – id. 156 (12 p.) [<http://adsabs.harvard.edu/abs/2012ApJ...749..156O>]
7. Beshley V., Petruk O. Hadronic γ -ray images of Sedov supernova remnants // Monthly Notices of the Royal Astronomical Society. – 2012. – V. 419. – P. 1421–1430. [<http://adsabs.harvard.edu/abs/2012MNRAS.419.1421B>]
8. Petruk O., Kuzyo T., Bocchino F. Constraints on magnetic field strength in the remnant SN1006 from its non-thermal images // Monthly Notices of the Royal Astronomical Society. – 2012. – V. 419. – P. 608–613. [<http://adsabs.harvard.edu/abs/2012MNRAS.419..608P>]
9. Bocchino F., Orlando S., Miceli M., Petruk O. Constraints on local interstellar magnetic field from non-thermal emission of SN1006 // Astronomy & Astrophysics. – 2011. – V. 531. – id. A129 (7 p.). [<http://adsabs.harvard.edu/abs/2011A%26A...531A.129B>]
10. Orlando S., Bocchino F., Miceli M., Petruk O., Pumo M. L. Role of ejecta clumping and back-reaction of accelerated cosmic rays in the evolution of supernova remnants // Memorie della Societa Astronomica Italiana. – 2011. – V. 82. – P. 787–791. [<http://adsabs.harvard.edu/abs/2011MmSAI..82..787O>]

11. Petruk O., Orlando S., Beshley V., Bocchino F. Radio, X-ray and gamma-ray surface brightness profiles as powerful diagnostic tools for non-thermal SNR shells // *Monthly Notices of the Royal Astronomical Society*. – 2011. – V. 413. – P. 1657–1670. [<http://adsabs.harvard.edu/abs/2011MNRAS.413.1657P>]
12. Petruk O., Beshley V., Bocchino F., Miceli M., Orlando S. Observational constraints on the modeling of SN1006 // *Monthly Notices of the Royal Astronomical Society*. – 2011. – V. 413. – P. 1643–1656. [<http://adsabs.harvard.edu/abs/2011MNRAS.413.1643P>]
13. Orlando S., Petruk O., Bocchino F., Miceli M. Effects of non-uniform interstellar magnetic field on synchrotron X-ray and inverse-Compton γ -ray morphology of supernova remnants // *Astronomy & Astrophysics*. – 2011. – V. 526. – id. A129 (15 p.) [<http://adsabs.harvard.edu/abs/2011A%26A...526A.129O>]
14. Bandiera R., Petruk O. A statistical approach to radio emission from shell-type SNRs. I. Basic ideas, techniques, and first results // *Astronomy & Astrophysics*. – 2010. – V. 509. – id. A34 (9 p.). [<http://adsabs.harvard.edu/abs/2010A%26A...509A..34B>]
15. Petruk O., Bocchino F., Miceli M., Dubner G., Castelletti G., Orlando S., Iakubovskiy D., Tezhinsky I. Predicted γ -ray image of SN 1006 due to inverse Compton emission // *Monthly Notices of the Royal Astronomical Society* – 2009. – V. 399. – P. 157-165. [<http://adsabs.harvard.edu/abs/2009MNRAS.399..157P>]
16. Miceli M., Bocchino F., Iakubovskiy D., Orlando S., Tezhinsky I., Kirsch M., Petruk O., Dubner G., Castelletti G. Thermal emission, shock modification, and X-ray emitting ejecta in SN 1006 // *Astronomy & Astrophysics*. – 2009. – V. 501. – P. 239-249. [<http://adsabs.harvard.edu/abs/2009A%26A...501..239M>]
17. Petruk O., Dubner G., Castelletti G., Bocchino F., Iakubovskiy D., Kirsch M., Miceli M., Orlando S., Tezhinsky I. Aspect angle for interstellar magnetic field in SN 1006 // *Monthly Notices of the Royal Astronomical Society* – 2009. – V. 393. – P. 1034-1040. [<http://adsabs.harvard.edu/abs/2009MNRAS.393.1034P>]
18. Petruk O., Beshley V., Bocchino F., Orlando S. Some properties of synchrotron radio and inverse-Compton gamma-ray images of supernova remnants // *Monthly Notices of the Royal Astronomical Society* – 2009. – V. 395. – P. 1467-1475. [<http://adsabs.harvard.edu/abs/2009MNRAS.395.1467P>]
19. Petruk O. Approximation of the radiation power of electrons due to the inverse-Compton process in the black-body photon field // *Astronomy & Astrophysics*. – 2008. – V. 499. – P. 643-648. [<http://adsabs.harvard.edu/abs/2009A%26A...499..643P>]
20. Petruk O., Beshley V. Synchrotron X-ray emission from supernova remnants. Exponential cut-off in the electron spectrum // *Kinematics and Physics of Celestial Bodies*, 2008, vol. 24, issue 3, pp. 159-170 [<http://link.springer.com/article/10.3103%2FS0884591308030045>]
21. Hnatyk B., Petruk O., Tezhinsky I. Transition of supernova remnants from the adiabatic stage of evolution to the radiative stage. Analytical description // *Kinematics and Physics of Celestial Bodies*, 2007, vol. 23, issue 4, p. 137-146 [<http://link.springer.com/article/10.3103%2FS0884591307040010>]
22. Petruk O., Beshley V. Synchrotron and thermal X-ray emission from supernova remnants. Low radiation losses of electrons // *Kinematics and Physics of Celestial Bodies*, 2007, vol. 23, issue 1, p. 16-27 [<http://link.springer.com/article/10.3103%2FS0884591307010047>]
23. Orlando S., Bocchino F., Reale F., Peres G., Petruk O. On the origin of asymmetries in bilateral supernova remnants // *Astronomy & Astrophysics*. – 2007. – V. 470. – P. 927-939. [<http://adsabs.harvard.edu/abs/2007A%26A...470..927O>]

24. Petruk O. The artificial broadening of the high-energy end of electron spectrum in supernova remnants // *Astronomy & Astrophysics*. – 2006. – V. 460. – P. 375-379. [<http://adsabs.harvard.edu/abs/2006A%26A...460..375P>]
25. Petruk O., Bandiera R. Influence of thermalisation on electron injection in supernova remnant shocks // *J. Phys. Studies*. – 2006. – V. 10. – P. 66-73. [http://ktf.franko.lviv.ua/JPS/2006/1/pdf/66_73.pdf]
26. Petruk O. On the transition of the adiabatic supernova remnant to the radiative stage in a nonuniform interstellar medium // *J. Phys. Studies*. – 2005. – V. 9. – P. 364–373. [http://ktf.franko.lviv.ua/JPS/2005/4/pdf/364_373.pdf]
27. Bandiera R., Petruk O. Analytic solutions for the evolution of radiative supernova remnants // *Astronomy & Astrophysics*. – 2004. – V. 419. – P. 419-423. [<http://adsabs.harvard.edu/abs/2004A%26A...419..419B>]
28. Petruk O. X-rays from Supernova Remnants in 3-D: Models and Effects // *Astr. Society of Pacific Conf. Proc.* – 2001. – V. 251. – P. 266-267. [<http://adsabs.harvard.edu/abs/2001ASPC..251..266P>]
29. Petruk O. A New Model for the Thermal X-ray Composites and the Neutral Pion Decay Gamma-Rays from Supernova Remnants // *Astrophysical Sources of High Energy Particles and Radiation* / Eds. Wefel J., Shapiro M., Stanev T. – Kluwer Academic Publishers, 2001. – P. 93-100. [<http://adsabs.harvard.edu/abs/2001ashe.conf...93P>]
30. Petruk O. Thermal X-ray composites as an effect of projection // *Astronomy & Astrophysics*. – 2001. – V. 371. – P. 267-273. [<http://adsabs.harvard.edu/abs/2001A%26A...371..267P>]
31. Petruk O. Approximations of the self-similar solution for a blastwave in a medium with power-law density variation // *Astronomy & Astrophysics*. – 2000. – V. 357. – P. 686-696. [<http://adsabs.harvard.edu/abs/2000A%26A...357..686P>]
32. Petruk, O. Evolution of supernova remnants in the interstellar medium with a large-scale density gradient. II. The 2-D modelling of evolution and X-ray emission of supernova remnant RCW86 // *Astronomy & Astrophysics*. – 1999. – v.346. – p.961-968. [<http://adsabs.harvard.edu/abs/1999A%26A...346..961P>]
33. Hnatyk, B., Petruk, O. Evolution of supernova remnants in the interstellar medium with a large-scale density gradient. I. General properties of the morphological evolution and X-ray emission // *Astronomy & Astrophysics*. – 1999. – v.344. – p.295-309. [<http://adsabs.harvard.edu/abs/1999A%26A...344..295H>]
34. Hnatyk, B., Petruk, O. Supernova Remnants as Cosmic Ray Accelerators. SNR IC 443 // *Condensed Matter Physics*. – 1998. – v.1, No.3. – p.655-667 [<http://www.icmp.lviv.ua/journal/zbirnyk.15/017/art17.pdf>]
35. Hnatyk B., Petruk O. The New Approximate Analytical Method for Calculation of a Point Explosion in the Inhomogeneous Medium and its Application to Modelling X-Ray Radiation From 3-D Supernova Remnants // *Kinematics and Physics of Celestial Bodies*, 1996, v.12, p. 44-60

And also

- 15 refereed papers in Ukrainian (1996-2015)
- about 60 conference abstracts and proceedings (since 2000)

Thesis

- Habilitation (second-level Ph.D.) in Astrophysics (2011)
Acceleration of cosmic rays in shell supernova remnants (353 pp., in English).
[\[http://astro.franko.lviv.ua/~petruk/dd.pdf\]](http://astro.franko.lviv.ua/~petruk/dd.pdf)
- Ph.D. in Astrophysics (2000)
Evolution of supernova remnants in nonuniform interstellar medium (183 pp., in Ukrainian)
[\[http://astro.franko.lviv.ua/~petruk/kd.pdf\]](http://astro.franko.lviv.ua/~petruk/kd.pdf)

Outreach

- Ukrainian sky. Studies on History of Astronomy in Ukraine (2014, 767 pages, in Ukrainian) – Editor [\[https://goo.gl/HO1W7a\]](https://goo.gl/HO1W7a)
- Petruk O., Astronomical Attractions in Lviv. Guide book (2014, 28 p. , in Ukrainian) [\[https://goo.gl/MqgCYH\]](https://goo.gl/MqgCYH)
- Florence. Architecture and art (2013, 300 p., in Ukrainian) – Album, in coauthorship with V.Voloshyn, Ya.Petruk, N.Semegen (a number of ancient astronomical attractions of Florence are presented) [\[https://goo.gl/u32weK\]](https://goo.gl/u32weK)
- popular articles in newspapers and youth journals about Astronomy (2009-2012)