Péter Veres | Curriculum Vitae

University of Alabama in Huntsville, Center for Space Plasma and Aeronomic Research, CRH-2092 Huntsville, AL 35899, USA
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Research interests

- **Gamma-ray burst theory**: prompt emission modeling, jet composition, high (GeV) and very high (TeV) energy emission, polarization, multi-messenger aspects
- **Gamma-ray burst analysis**: GRBs as counterparts to gravitational waves, sensitivity limit determination, sub-threshold searches
- **Other interests**: gravitational waves, active galactic nuclei, intergalactic magnetic field, X-ray binaries, Crab nebula

Positions

- **University of Alabama in Huntsville** 2018.8–
  Research Scientist
- **University of Alabama in Huntsville** advisor: **Michael Briggs**
  Postdoctoral Scholar *2015.5–2018.8*
- **George Washington University** advisors: **Alessandra Corsi, Kalvir Dhuga**
  Postdoctoral Scholar *2014.0–2015.5*
- **Pennsylvania State University** advisor: **Péter Mészáros**
  Postdoctoral Scholar *2011.6–2014.0*
- **Eötvös Loránd University** advisors: **Zsolt Bagoly, István Horváth**
  Graduate student - PhD *2007.7–2011.6*

Awards

- Bruno Rossi prize, as part of the Fermi-GBM team (2018)
- CSPAR (departmental) Science Achievement Award (2017)
- NASA Space Flight Awareness Award, as part of the Fermi-GBM team (2017)
- NASA Group Achievement Award, as part of the Fermi-GBM team (2016)
- Hungarian Scientific Research Fund Grant (2009-)
- National Science Fund Ireland - Graduate Scholarship (2006-2007)
- National Scientific Competition (astrophysics): honorable mention (2005)
- Hungarian State Scholarship for Students from outside Hungary (2001-2006)
- Math. competition of Hungarian nationals (high school level): 1^{st} prize (2001)

Grants

Principal investigator

- State of the art atmospheric scattering model for Fermi-GBM: possible polarization measurement and improved localizations (Fermi-Guest Investigator, $65k, 2020-21)

- Gamma-ray Bursts Similar to GRB 170817A: Comprehensive Search in the BATSE and Swift Data (NASA-Astrophysics Data Analysis Program, $120k, 2018-2020)
- Is There a Relation between prompt grb polarization and spectral Parameters? Answers from Fermi-GBM AND AstroSAT (Fermi-Guest Investigator, $60k, 2017-2018)

Co-investigator

- Improving the Targeted Sub-threshold Search of GBM Data for Electromagnetic Counterparts to Gravitational Wave Detection (Fermi-Guest Investigator, PI: Daniel Kocevski, 2018-2019)
- A Blind Search for Untriggered Short GRBs in the Continuous Data of Fermi GBM (Fermi-Guest Investigator, PI: Michael S. Briggs, 2017-2018)
- Next Generation Time-dependent Spectral Models of GRBs (NASA-Astrophysics Theory Program, PI: Péter Mészáros, 2012-2015)

Teaching experience

- Astronomy 1002 lecturer (George Washington University)
- Classical physics lab assistant (University College Cork, Ireland)
- Electronics lab assistant (Eötvös U., Budapest, Hungary)
- Basic calculus and probability theory, Linear algebra (National Defense U., Budapest, Hungary)

Professional activity

- **Member** of: Fermi-GBM, Fermi-LAT and CTA collaborations
- **Panelist** for: NSF (2017), NASA/Fermi guest investigator program (2018)
- **Referee** for The Astrophysical Journal, Monthly Notices of the Royal Astronomical Society, Astronomy & Astrophysics, Science, Nature Astronomy, Space Science Reviews, Galaxies
- **Supervisor** for:
  Georgia Michelman (Yale University), NASA-MSFC Summer internship (2019)
  Nohely Miranda-Colón (University of Puerto Rico), NASA-MSFC Summer internship (2018)
  József Kóbori (Eötvös University), MSc. thesis (2011)

Computer skills

- **Programming:** Python, IDL, Linux shell scripting, R, Mathematica, gnuplot
- **Astro-specific software:** rmfit, heasoft, AIPS, HEALPix

Languages

- **Hungarian:** native
- **English, Romanian:** fluent
- **German:** basic

References

- **Péter Mészáros**
  Eberly Chair of Astronomy & Astrophysics, Professor of Physics | Pennsylvania State University
  525 Davey Lab, University Park, PA 16802
  +1-814-865-0418 | <nnp@psu.edu>

- **Szabolcs Márka**
  Walter O. LeCroy, Jr. Professor of Physics, Astrophysics | Columbia University
  1009 Pupin Hall, Mail Code: 5229, New York, NY 10027
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- **Alessandra Corsi**
  Associate Professor | Texas Tech University
  Department of Physics and Astronomy, Box 1051 Lubbock, TX 79409-1051
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- **Michael S. Briggs**
  Principal Research Scientist | University of Alabama in Huntsville
  Cramer Hall 2002 | 301 Sparkman Drive | Huntsville, AL 35899
  +1 256-961-7667 | <briggsms@uah.edu>
- **Valerie Connaughton**
  Program Scientist | SMD - Astrophysics Division
  NASA HQ, 300 E St SW | Washington, DC 20546
  +1 202-358-1763 | <valerie.connaughton@nasa.gov>

Talks, Seminars

- INTEGRAL looks AHEAD to Multimessenger astronomy, February 11-15, 2019, Geneva
  Synergies between gamma-ray observatories for multi-messenger astronomy (invited talk)
- Vision for the Next Decades in Astrophysics with Gravitational Waves and other Cosmic Messengers, November 30-December 1, 2018, Columbia University, New York
  Role of Gamma-ray Bursts in the Future of Multimessenger Astrophysics (invited talk)
- Monitoring the non-thermal Universe, 18-21 September 2018 Cochem (Mosel), Germany
  Fermi Gamma-ray Burst Monitor Observations of Gravitational Wave Counterparts (talk)
- Physics and Astrophysics at the Extreme, February 5-7, 2018, State College, PA
  GRB 170817A and high energy detection prospects (invited talk)
- GW170817: The First Double Neutron Star Merger, Dec 5-8, 2017, Santa Barbara, CA
  Fermi GBM observations of GRB 170817A (invited talk)
- Columbia University Rapid Response Workshop: Binary NS Merger, 2017 October
  Fermi GBM observations of GRB 170817A (invited talk)
- Gravitational Wave Astrophysics (IAU 2017), October 16-19, 2017 Baton Rouge, Louisiana
  Results from electromagnetic counterpart search programs with Fermi GBM (talk)
- A TPC for MeV Astrophysics: high-angular-resolution observations and polarimetry, April 12-14, 2017, Paris, FR
  How polarization measurements will disentangle gamma-ray bursts models (invited talk)
- European Week of Astronomy and Space Science, June 26-30, 2017, Prague, CZ
  Photospheric models for gamma-ray burst prompt emission (invited talk)
- 8^{th} Huntsville Gamma-Ray Burst Symposium, October 24-28, 2016
  Central Engines and Radiation Mechanisms of Gamma-Ray Bursts (invited talk)
- Charles University Astrophysics seminar, June 29, 2017
  Fermi satellite, gravitational waves detected by Advanced LIGO and the gamma-ray bursts
- Columbia University Dept. of Astronomy seminar, October 31, 2013
  Photospheric emission from GRB models with general dynamics and fits to Fermi LAT observations
- Fifth International Fermi Symposium, October 20-24, 2014, Nagoya, Japan

Hints of the Jet Composition in Gamma-ray Bursts from Dissipative Photosphere Models (talk)

- COSPAR meeting, 2-10 August 2014, Moscow, Russia
  TeV range detection prospects of short gamma-ray bursts with extended emission episodes (talk)
- The Unquiet Universe, 2-14 June 2014, Cefalù, Italy
  TeV range detection prospects of short gamma-ray bursts with extended emission episodes (talk)
- Gamma-Ray Bursts 2012 Conference, 7-11 May 2012, Munich, Germany
  Single- and two-component gamma-ray burst spectra in the Fermi GBM-LAT energy range (talk)
- Bolyai-Gauss-Lobachevsky Conference, Cluj-Napoca, Romania 5 - 9 July 2010
  Graviational Lensing Signatures in Gamma-Ray Burst Lightcurves (talk)
- 5th Conference of Young Researchers in Astronomy and Astrophysics, Budapest, 2009 Sept. 2-4
  Surpisingly strong outburst of an AGN at redshift z=4.7 (talk)
- 6th Integral/BART Workshop, Karlovy Vary, Czech Republic, 26-29 March 2009
  Gamma-ray bursts: connecting the prompt emission with the afterglow

List of publications

(arXiv links point to papers)

58. *Observation of inverse Compton emission from a long gamma-ray burst*
    MAGIC collab., P. Veres, et al..
    Nature, **575**, 459, (2019) (arXiv:)

57. *Evaluation of Automated Fermi GBM Localizations of Gamma-ray Bursts*
    Goldstein, Adam; Fletcher, Corinne; Veres, Péter, et al.
    ApJ submitted, (2019) (arXiv:1909.03006)

56. *Fermi and Swift Observations of GRB 190114C: Tracing the Evolution of High-Energy Emission from Prompt to Afterglow*
    Ajello, M., ... Veres P. (corresponding author), et al.
    ApJ accepted, (2019) (arXiv:1909.10605)

55. *Fermi GBM follow-up of LIGO-Virgo binary black hole mergers – detection prospects*
    Veres P., Dal Canton, T. et al.
    ApJ, **882**, 53, (2019) (arXiv:1905.08755)

54. *A Decade of Gamma-Ray Bursts Observed by Fermi-LAT: The Second GRB Catalog*
    Ajello, M., ... Veres P., et al.
    ApJ, **878**, 52, (2019) (arXiv:1906.11403)

53. *Reverse Shock Emission Revealed in Early Photometry in the Candidate Short GRB 180418A*
    Becerra, Rosa L., ..., Veres, Péter, et al.
    ApJ, **881**, 12, (2019) (arXiv:1904.05987)

52. *The rare extended radio-loud narrow-line Seyfert 1 galaxy SDSS J1030+5516 at high resolution*
    Gabányi, K. É., Frey,S.; Veres P., Moór, A.
    Ap&SS, **364**, 68, (2019) (arXiv:1904.07540)

51. *Fermi GBM GRBs with characteristics similar to GRB 170817A*
    von Kienlin, A., Veres P.,. et al.,
    ApJ, **876**, 89, (2019) (arXiv:1901.06158)

50. *A Fermi Gamma-ray Burst Monitor Search for Electromagnetic Signals Coincident with Gravitational-Wave Candidates in Advanced LIGO's First Observing Run*
Burns, E.,. . . Veres P., et al.
ApJ, **871**, 90, (2019) (arXiv:1810.02764)

49. *Fermi GBM Observations of GRB 150101B: A Second Nearby Event with a Short Hard Spike and a Soft Tail*
Burns, E., Veres P., et al.
ApJL, **863**, 34, (2018) (arXiv:1807.02866)

48. *Analysis of Sub-threshold Short Gamma-ray Bursts in Fermi GBM Data*
Kocevski, D., . . . P. Veres et al.
ApJ, **862**, 152, (2018) (arXiv:1806.02378)

47. *The Origin of the Optical Flashes: The Case Study of GRB 080319B and GRB 130427A*
Fraija, N., Veres P.
ApJ, **859**, 70, (2018) (arXiv:1804.02449)

46. *On the Interpretation of the Fermi-GBM Transient Observed in Coincidence with LIGO Gravitational-wave Event GW150914*
V. Connaughton, . . . , P. Veres, et al.
ApJL, **853**, 9, (2018) (arXiv:1801.02305)

45. *Multi-messenger Observations of a Binary Neutron Star Merger*
Abbott, B.P.;. . . P. Veres, et al.
ApJL, **848**, 12, (2017) (arXiv:1710.05833)

44. *Gravitational Waves and Gamma-Rays from a Binary Neutron Star Merger: GW170817 and GRB 170817A*
Abbott, B.P.;. . . P. Veres, et al.
ApJL, **848**, 13, (2017) (arXiv:1710.05834)

43. *An Ordinary Short Gamma-Ray Burst with Extraordinary Implications: Fermi-GBM Detection of GRB 170817A*
Goldstein, A.; Veres P., et al.
ApJL, **848**, 14, (2017) (arXiv:1710.05446)

42. *Fermi Observations of the LIGO Event GW170104*
Goldstein, A.; Veres P., et al.
ApJL, **846**, 5, (2017) (arXiv:1706.00199)

41. *Modeling the High-energy Emission in GRB 110721A and Implications on the Early Multiwavelength and Polarimetric Observations*
Fraija, N.; Veres P., et al.
ApJ, **848**, 94, (2017) (arXiv:1709.06263)

40. *Theoretical Description Of GRB 160625B with Wind-to-ISM Transition and Implications for a Magnetized Outflow*
Fraija, N.; Veres P., et al.
ApJ, **848**, 15, (2017) (arXiv:1705.09311)

39. *Properties of the Intergalactic Magnetic Field Constrained by Gamma-ray Observations of Gamma-Ray Bursts*
Veres P.,; Dermer, C. D.; Dhuga, K. S.
ApJ, **847**, 39, (2017) (arXiv:1705.08531)

38. *High-energy emission as signature of magnetic field amplification in Neutron Star Mergers*
Fraija, Nissim; Lee, William H.; Veres, Péter; Barniol Duran, Rodolfo
(arXiv:1701.01184)

37. *Searching the Gamma-Ray Sky for Counterparts to Gravitational Wave Sources: /Fermi GBM and LAT Observations of LVT151012 and GW151226*
Racusin, J. L.; ...; Veres P., et al.
ApJ, **835**, 82, (2017) (arXiv:1606.04901)

36. *Updates to the Fermi-GBM Short GRB Targeted Offline Search in Preparation for LIGO's Second Observing Run*
Goldstein, A.; Burns, E.; Hamburg, R.; Connaughton, V.; Veres P.; Briggs, M. S.; Hui, C. M.; The GBM-LIGO Collaboration.
Research note (arXiv:1612.02395)

35. *High-Energy Non-Thermal and Thermal Emission from GRB141207A detected by Fermi*
Arimoto, Makoto; Asano, Katsuaki; Ohno, Masanori; Veres, Péter; Axelsson, Magnus; Bissaldi, Elisabetta; Tachibana, Yutaro; Kawai, Nobuyuki.
ApJ, **833**, 139, (2016) (arXiv:1610.04867)

34. *Modeling the early afterglow in the short and hard GRB 090510*
Fraija, Nissim; Lee, William H.; Veres, Péter; Barniol Duran, Rodolfo
ApJ, **831**, 22, (2016) (arXiv:1608.01420)

33. *Localization and Broadband Follow-up of the Gravitational-wave Transient GW150914*
Abbot,B. P.,. . . , P. Veres, et al.
ApJ, **826**, 13, (2016) (arXiv:1602.08492)

32. *Gravitational wave observations may constrain gamma-ray burst models: the case of GW 150914 - GBM*
Veres P., Preece, R. D.; Goldstein, A.; Mészáros, P.; Burns, E.; Connaughton, V.
ApJL, **827**, 34, (2016) (arXiv:1607.02616)

31. *Fermi GBM Observations of LIGO Gravitational Wave event GW150914*
V. Connaughton, . . . , P. Veres, et al.
ApJ, **826**, 6, (2016) (arXiv:1602.03920)

30. *The Third Fermi GBM Gamma-Ray Burst Catalog: The First Six Years*
Narayana Bhat, P.; . . . , Péter Veres, et al.
ApJS, **223**, 28, (2016) (arXiv:1603.07612)

29. *The Fermi GBM gamma-ray burst time-resolved spectral catalog: brightest bursts in the first four years*
Yu, Hoi-Fung, . . . , Veres, Péter, et al.,
A&A, **588**, 135, (2016), (arXiv:1601.05206)

28. *Modeling the early multiwavelength emission in GRB130427A*
Fraija, Nissim; Lee, William H.; Veres, Péter
ApJ, **818**, 190, (2016), (arXiv:1601.01264)

27. *Fermi GBM Observations of V404 Cyg During its 2015 Outburst*
Jenke, P. A.; Wilson-Hodge, C. A.; Homan, Jeroen; Veres P.; Briggs, M. S.; Burns, E.; Connaughton, V.; Finger, M. H.; Hui, M.
ApJ, **826**, 37, (2016), (arXiv:1601.00911)

26. *Happy Birthday Swift: Ultra-long GRB 141121A and its broad-band Afterglow*
A. Cucchiara, P. Veres, A. Corsi, S. B. Cenko, D. A. Perley, et al.,
ApJ, **812**, 122, (2015), (arXiv:1510.00996)

25. *Early-time VLA observations and broad-band afterglow analysis of the Fermi-LAT detected GRB 130907A*
Péter Veres, Alessandra Corsi, Dale A. Frail, S. Bradley Cenko, Daniel Perley
ApJ, **810**, 31, (2015) (arXiv:1411.7368)

24. *Gamma-ray Bursts: Temporal Scales and the Bulk Lorentz Factor*
Sonbas, E.; MacLachlan, G. A.; Dhuga, K. S.; Veres P.; Shenoy, A.; Ukwatta, T. N.
ApJ, **805**, 86, (2015), (arXiv:1408.3042)

23. *Constraints on Very High Energy Emission from GRB 130427A*
E. Aliu, . . . , P. Veres (corresponding author) et al.
ApJL, **795**, 3, (2014), (arXiv:1410.5367)

22. *An Observed Correlation Between Thermal and Non-Thermal Emission in Gamma-Ray Bursts*
Burgess, J. Michael; Preece, Robert D.; Ryde, Felix; Veres, Péter (corresponding author); et al.
ApJL, **784**, 43, (2014), (arXiv:1403.0374)

21. *Prospects for GeV-TeV detection of short gamma-ray bursts with extended emission*
P. Veres, P. Mészáros,
ApJ, **787**, 168, (2014), (arXiv:1312.0590)

20. *Cherenkov Telescope Array is Well-suited to Follow Up Gravitational-wave Transients*
Bartos, Imre; Péter Veres; Nieto, Daniel; Connaughton, Valerie; Humensky, Brian; Hurley, Kevin; Márka, Szabolcs; Mészáros, Péter; Mukherjee, Reshmi; O'Brien, Paul; Osborne, Julian P.
MNRAS, **738**, 49, (2014), (arXiv:1403.6119)

19. *Evidence for the Connection between Prompt and X-ray Afterglow emission of Swift-Detected Gamma-Ray Bursts*
D. Grupe; J. A. Nousek; P. Veres; B.-B. Zhang; N. Gehrels
ApJ Supplement Series, **209**, 20, (2013), (arXiv:1305.3236)

18. *The obscured hyper-energetic GRB120624B hosted by a luminous compact galaxy at z=2.20*
A. de Ugarte Postigo; S. Campana; C.C. Thöne; P. D'Avanzo; R. Sanchez-Ramirez; A. Melandri; J. Gorosabel; G. Ghirlanda; P. Veres; S. Martin; G. Petitpas; S. Covino; J.P.U. Fynbo; A.J. Levan
A&A, **557**, 18, (2013), (arXiv:1309.1167)

17. *Magnetically and Baryonically Dominated Photospheric Gamma-Ray Burst Model Fits to Fermi LAT Observations*

P. Veres; B.-B. Zhang; P. Mészáros
ApJ, **764**, 94, (2013), (arXiv:1210.7811)

16. *The extremely high peak energy of GRB 110721A in the context of a dissipative photosphere synchrotron emission model*
P. Veres; B.-B. Zhang; P. Mészáros
ApJL, **761**, L18, (2012), (arXiv:1208.1790)

15. *Searching for galactic sources in the Swift GRB catalog Statistical analyses of the angular distrbutions of FREDs*
Tello J.C., Castro-Tirado A.J., Gorosabel J., Perez-Ramırez D., Guziy S., P. Veres, Bagoly Z.
A&A Letters, **548**, 7, (2012), (arXiv:1210.3699)

14. *Single- and Two-component Gamma-Ray Burst Spectra in the Fermi GBM-LAT Energy Range*
P. Veres, P. Mészáros
ApJ, **755**, 12, (2012), (arXiv:1202.2821)

13. *On the Spectral Lags and Peak Counts of the Gamma-Ray Bursts Detected by the RHESSI Satellite*
J. Ripa; A. Mészáros, ; P. Veres, I.H. Park
ApJ, **756**, 44, (2012), (arXiv:1206.6198)

12. *Characteristics of Swift's intermediate-population bursts*
de Ugarte Postigo, A.; Horváth, I.; P. Veres; Bagoly, Z.; Kann, D. A. et al.
A&A, **525**, A109, (2011), (arXiv:1006.4469)

11. *A distinct peak-flux distribution of the third class of gamma-ray bursts: A possible signature of X-ray flashes?*
P. Veres, Bagoly, Z; Horváth, I; Mészáros, A; Balázs, L.G.
ApJ, **725**, 1955, (2010), (arXiv:1010.2087)

10. *Physical parameters of a relativistic jet at very high redshift: the case of the blazar J1430+4204*
P. Veres, Frey, S; Paragi, Z; Gurvits, L
A&A, **521**, 6, (2010)

9. *Investigating gamma-ray burst data reduction techniques with Swift's instruments*
P. Veres
Advances in Space Research (2011), **47**, 1356

8. *Investigating gamma- and X-ray properties of GRBs using multivariate statistics*
Balázs, L.G., P. Veres
Advances in Space Research (2011), **47**, 1404

7. *Detailed Classification of Swift's Gamma-Ray Bursts*
Horváth, I; Bagoly, Z; Balázs, L.G., de Ugarte Postigo, A, P. Veres, Mészáros, A;
Astrophysical Journal, **713**, 552, (2010)

6. *Detection of the ultra-high z short GRB 080913 and its implications on progenitors and energy extraction mechanisms*
Perez-Ramirez, D.;. . . P. Veres; et al.
A&A, **510**, A105, (2010)

5. *Gamma-ray bursts: connecting the prompt emission with the afterglow*
   P. Veres, Bagoly, Z.
   Baltic Astronomy, **18**, 284 (2009)

4. *Impact on cosmology of the celestial anisotropy of the short gamma-ray bursts*
   A. Mészáros, L. G. Balázs, Z. Bagoly, P. Veres
   Baltic Astronomy, **18**, 293 (2009)

3. *Classification of Swift's gamma-ray bursts*
   I. Horváth, L. G. Balázs, Z. Bagoly, P. Veres
   Astronomy and Astrophysics, **489**, L1 (2008)

2. *Model-independent methods of describing GRB spectra using BATSE MER data*
   P. Veres, Horváth I., Bagoly Z., Balázs L., Mészáros A., Tusnády G., Ryde F.
   Il Nuovo Cimento B, **121**, 1609, (2006), (arXiv:1001.0286)

1. *Analysis of the BATSE continuous MER data*
   P. Veres, Horváth I., Balázs L.: Il Nuovo Cimento C **28**, 355, (2005) (arXiv:0510323)