

Refereed publications and reviews:

1. Xu, R., **Spitkovsky, A.**, Caprioli, D. 2020, “*Electron acceleration in non-relativistic quasi-perpendicular collisionless shocks*”, ApJ Lett, 897L, 41
2. Fiuza, F., Swalding, G., Grassi, A., Rinderknecht, H., Higginson, D., Ryutov, D., Brusema, C., Drake, R. P., Funk, S., Glenzer, S., Gregori, G., Li, C., Pollock, B., Remington, B., Ross, J., Rozmus, W., Sakawa, Y., **Spitkovsky, A.**, Wilks, S., Park, H.-S. 2020, “*Electron acceleration in laboratory-produced turbulent collisionless shocks*,” Nature Physics, 16, 916
3. Philippov, A., Timokhin, A., **Spitkovsky, A.** 2020, “*On the origin of pulsar radio emission*,” Phys. Rev. Lett., 124, 245101
4. Chen, A., Cruz, F., **Spitkovsky, A.** 2020, “*Filling the Magnetospheres of Weak Pulsars*,” ApJ, 889, 69
5. Cavecchi, Y. & **Spitkovsky, A.** 2019, “*Three-dimensional Instability of Flame Fronts in Type I X-Ray Bursts*,” ApJ, 882, 142
6. Kuzichev, I., Vasko, I., Soto-Chavez, R., Tong, Y., Artemyev, A., Bale, S., **Spitkovsky, A.** 2019, “*Nonlinear Evolution of the Whistler Heat Flux Instability*,” ApJ, 882, 81
7. Holcomb, C. & **Spitkovsky, A.** 2019, “*On the Growth and Saturation of the Gyroresonant Streaming Instabilities*,” 2019, ApJ, 882, 3
8. Yuan, Y., **Spitkovsky, A.**, Blandford, R. D. 2019, “*Black hole magnetosphere with small-scale flux tubes - II. Stability and dynamics*,” MNRAS, 487, 4114
9. Kuzichev, I. V., Soto-Chavez, A. R., Park, J., Gerrard, A., **Spitkovsky, A.** 2019, “*Magnetospheric chorus wave simulation with the TRISTAN-MP PIC code*,” Physics of Plasmas, 26, 2901
10. Petropoulou, M., Sironi, L., **Spitkovsky, A.**, Giannios, D. 2019, “*Relativistic Magnetic Reconnection in Electron-Positron-Proton Plasmas: Implications for Jets of Active Galactic Nuclei*,” ApJ, 880, 37
11. Hakobyan, H., Philippov, A., **Spitkovsky, A.** 2019, “*Effects of Synchrotron Cooling and Pair Production on Collisionless Relativistic Reconnection*,” ApJ, 877, 53
12. Philippov, A., Uzdensky, D., **Spitkovsky, A.**, Cerutti, B. 2019, “*Pulsar Radio Emission Mechanism: Radio Nanoshots as a Low-frequency Afterglow of Relativistic Magnetic Reconnection*,” ApJ Lett., 876, 6
13. Komarov, S., Schekochihin, A. A., Churazov, E. & **Spitkovsky, A.** 2018, “*Self-inhibiting thermal conduction in a high-beta, whistler-unstable plasma*,” J. Plasma Ph., 84, 9005
14. Caprioli, D., Zhang, H. & **Spitkovsky, A.** 2018, “*Diffusive shock re-acceleration*,” J. Plasma Ph., 84, 7101

15. Kumar, R., Zirnstien, E. J. & **Spitkovsky, A.** 2018, “*Energy Distribution of Pickup Ions at the Solar Wind Termination Shock*,” ApJ, 860, 156
16. Philippov, A. A. & **Spitkovsky, A.** 2018, “*Ab-initio Pulsar Magnetosphere: Particle Acceleration in Oblique Rotators and High-energy Emission Modeling*,” ApJ, 855, 94
17. Caprioli, D., Yi, D. T. & **Spitkovsky, A.** 2017, “*Chemical Enhancements in Shock-Accelerated Particles: Ab initio Simulations*,” Phys. Rev. Lett., 119, 171101
18. Fox, W., Park, J., Deng, W., Fiksel, G., **Spitkovsky, A.**, Bhattacharjee, A. 2017, “*Astrophysical particle acceleration mechanisms in colliding magnetized laser-produced plasmas*,” Phys. of Plasmas, 24, 092901
19. Parfrey, K., **Spitkovsky, A.** & Beloborodov, A. 2017, “*Simulations of the magnetospheres of accreting millisecond pulsars*,” MNRAS, 469, 3656
20. Ross, J. S., Higginson, D. P., Ryutov, D., Fiuza, F., Hatarik, R., Huntington, C. M., Kalantar, D. H., Link, A., Pollock, B. B., Remington, B. A., Rinderknecht, H. G., Swadling, G. F., Turnbull, D. P., Weber, S., Wilks, S., Froula, D. H., Rosenberg, M. J., Morita, T., Sakawa, Y., Takabe, H., Drake, R. P., Kuranz, C., Gregori, G., Meinecke, J., Levy, M. C., Koenig, M., **Spitkovsky, A.**, Petrasso, R. D., Li, C. K., Sio, H., Lahmann, B., Zylstra, A. B., Park, H.-S. 2017, “*Transition from Collisional to Collisionless Regimes in Interpenetrating Plasma Flows on the National Ignition Facility*,” Phys. Rev. Lett., 118, 185003
21. Huntington, C. M., Manuel, M. J.-E., Ross, J. S., Wilks, S. C., Fiuza, F.; Rinderknecht, H. G., Park, H.-S., Gregori, G., Higginson, D. P., Park, J., Pollock, B. B., Remington, B. A., Ryutov, D. D., Ruyer, C., Sakawa, Y., Sio, H., **Spitkovsky, A.**, Swadling, G. F., Takabe, H., Zylstra, A. B. 2017, “*Magnetic field production via the Weibel instability in interpenetrating plasma flows*,” Phys. of Plasmas, 24, 041410
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23. Parfrey, K., **Spitkovsky, A.** & Beloborodov, A. M. 2016, “*Torque Enhancement, Spin Equilibrium, and Jet Power from Disk-Induced Opening of Pulsar Magnetic Fields*,” ApJ, 822, 33
24. Tchekhovskoy, A., Philippov, A. & **Spitkovsky, A.** 2016, “*Three-dimensional Analytical Description of Magnetised Winds from Oblique Pulsars*”, MNRAS, 457, 3384
25. Cerutti, B., Philippov, A. A., & **Spitkovsky, A.** 2016, “*Modeling high-energy pulsar lightcurves from first principles*.” MNRAS, 457, 2401
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29. Cerutti, B., Philippov, A., **Spitkovsky, A.** 2015, “*Particle Acceleration in Axisymmetric Pulsar Current Sheets*,” MNRAS, 447, 3328
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33. Huntington, C. M., Fiuza, F., Ross, J. S., Zylstra, A. B., ... **Spitkovsky, A.** et al. 2015, “*Observation of Magnetic Field Generation via the Weibel Instability in Interpenetrating Plasma Flows*,” Nature Physics, 11, 173
34. Caprioli, D., Pop, A. & **Spitkovsky, A.** 2015, “*Simulations and Theory of Ion Injection at Non-relativistic Collisionless Shocks*,” ApJ Letters, 798, L28
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37. Philippov, A. & **Spitkovsky, A.** 2014, “*Ab-initio Pulsar Magnetosphere: Three-Dimensional Particle-In-Cell Simulations of Axisymmetric Pulsars*,” ApJ Letters, 785L, 33
38. Caprioli, D. & **Spitkovsky, A.** 2014, “*Simulations of Ion Acceleration at Non-relativistic Shocks: I. Acceleration Efficiency*,” ApJ, 783, 91
39. Sironi, L. & **Spitkovsky, A.** 2014, “*Relativistic Reconnection: an Efficient Source of Non-thermal Particles*,” ApJ Letters, 783L, 21
40. Uzdensky D. & **Spitkovsky, A.** 2014, “*Physical Conditions in the Reconnection Layer in Pulsar Magnetospheres*,” ApJ, 780, 3
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42. Tchekhovskoy, A., **Spitkovsky, A.** & Li, J. G. 2013, “*Time-dependent 3D Magnetohydrodynamic Pulsar Magnetospheres: Oblique Rotators*,” MNRAS Letters, 435, L1
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44. Kugland, N. L., Ross, J. S., Chang, P.-Y., Drake, R. P, ... **Spitkovsky, A.** (28/30) et al. 2013, “*Visualizing Electromagnetic Fields in Laser-Produced Counter-Streaming Plasma Experiments for Collisionless Shock Laboratory Astrophysics*”, Phys. of Plasmas, 20, 056313
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59. Riquelme, M. & **Spitkovsky, A.** 2011, “Electron Injection by Whistler Waves in Non-relativistic Shocks,” ApJ, 733, 63
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61. Park, H.-S., Ryutov, D. D., Ross, J. S., Kugland, N. L., Glenzer, S. H., Plechaty, C., Pollaine, S. M., Remington, B. A., **Spitkovsky, A.**, Gargate, L., Gregori, G., Bell, A., Murphy, C., Sakawa, Y., Kuramitsu, Y., Morita, T., Takabe, H., Froula, D. H., Fiksel, G., Minniati, G., Koenig, M., Ravasio, A., Pelka, A., Liang, E., Woolsey, N., Kuranz, C. C., Drake, R. P., Grosskopf, M. J. 2012, “Studying Astrophysical Collisionless Shocks with Counterstreaming Plasmas From High Power Lasers,” High Energy Density Physics, 8, 38
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Popular publications about my research:

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