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Physics, B. Sc.
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Publikationer

The Milky Way shines in high-energy neutrinos

Bustamante, Mauricio, 13 dec. 2023, I: Nature Reviews Physics. 6, s. 8-10 3 s.

Searches for dark matter decay with ultrahigh-energy neutrinos endure backgrounds

Fiorillo, Damiano Francesco G, Valera, Victor, Bustamante, Mauricio & Winter, W., 8 nov. 2023, I: Physical Review D. 108, 10, 26 s., 103012.

Neutrino self-interactions: A white paper

Berryman, J. M., Blinov, N., Brdar, V., Brinckmann, T., Bustamante, M., Cyr-Racine, F. Y., Das, A., de Gouvêa, A., Denton, P. B., Dev, P. S. B., Dutta, B., Esteban, I., Fiorillo, D., Gerbino, M., Ghosh, S., Ghosh, T., Grohs, E., Han, T., Hannestad, S., Hostert, M. & 14 flere, Huber, P., Hyde, J., Kelly, K. J., Kling, F., Liu, Z., Lattanzi, M., Loverde, M., Pandey, S., Saviano, N., Sen, M., Shoemaker, I. M., Tangarife, W., Zhang, Y. & Zhang, Y., 29 sep. 2023, I: Physics of the Dark Universe. 42, 25 s., 101267.

Present and future constraints on flavor-dependent long-range interactions of high-energy astrophysical neutrinos

Agarwalla, S. K., Bustamante, Mauricio, Das, S. & Narang, A., 18 aug. 2023, I: Journal of High Energy Physics. 2023, 8, 48 s., 113.

Flavor-dependent long-range neutrino interactions in DUNE & T2HK: alone they constrain, together they discover
Singh, M., Bustamante, Mauricio & Agarwalla, S. K., 17 aug. 2023, I: Journal of High Energy Physics. 2023, 8, 36 s., 101.

Bump hunting in the diffuse flux of high-energy cosmic neutrinos
Fiorillo, Damiano Francesco G & Bustamante, Mauricio, 4 apr. 2023, I: Physical Review D. 107, 30 s., 083008.

Near-future discovery of point sources of ultra-high-energy neutrinos
Fiorillo, Damiano Francesco G, Bustamante, Mauricio & Valera, Victor, 1 mar. 2023, I: Journal of Cosmology and Astroparticle Physics. 2023, 3, 41 s., 026.

Near-future discovery of the diffuse flux of ultrahigh-energy cosmic neutrinos
Valera, Victor, Bustamante, Mauricio & Glaser, C., 16 feb. 2023, I: Physical Review D. 107, 4, 43 s., 043019.

Snowmass white paper: beyond the standard model effects on neutrino flavor
Arguelles, C. A., Barenboim, G., Bustamante, M., Coloma, P., Denton, P. B., Esteban, G. F., Farzan, Y., Martinez, E. F., Forero, D., Gago, A. M., Katori, T., Lehnert, R., Ross-Lonergan, M., Suliga, A. M., Tabrizi, Z., Anchordoqui, L., Chakraborty, K., Conrad, J., Das, A., Fong, C. S. & 6 flere, Littlejohn, B. R., Maltoni, M., Parno, D., Spitz, J., Tang, J. & Wissel, S., 11 jan. 2023, I: European Physical Journal C. 83, 1, 57 s., 15.

High-energy and ultra-high-energy neutrinos: A Snowmass white paper
Ackermann, M., Agarwalla, S. K., Alvarez-Muniz, J., Batista, R. A., Arguelles, C. A., Bustamante, M., Clark, B. A., Cummings, A., Das, S., Decoene, V., Denton, P. B., Dornic, D., Dzhlkibaev, Z-A., Farzan, Y., Garcia, A., Garzelli, M. V., Glaser, C., Heijboer, A., Horandel, J. R., Illuminati, G. & 26 flere, Jeong, Y. S., Kelley, J. L., Kelly, K. J., Kheirandish, A., Klein, S. R., Krizmanic, J. F., Larson, M. J., Lu, L., Murase, K., Narang, A., Otte, N., Prechelt, R. L., Prohira, S., Reno, M. H., Resconi, E., Santander, M., Valera, Victor, Vandenbroucke, J., Suvorova, O. V., Wiencke, L., Wissel, S., Yoshida, S., Yuan, T., Zas, E., Zhelning, P. & Zhou, B., nov. 2022, I: Journal of High Energy Astrophysics. 36, s. 55-110 56 s.

Search for quantum gravity using astrophysical neutrino flavour with IceCube
Abbasi, R., Ackermann, M., Adams, J., Aguilar, J. A., Ahlers, Markus Tobias, Ahrens, M., Alameddine, J. M., Alispach, C., Alves, A., Amin, N. M., Bourbeau, E., Koskinen, D. Jason, Kozynets, T., Bustamante, Mauricio, Mead, J., Stuttard, Thomas Simon, Rameez, M. & Icecube Collaboration, I. C., 24 okt. 2022, I: Nature Physics. 18, s. 1287-1292 16 s.

Tau neutrinos in the next decade: from GeV to EeV
Abraham, R. M., Alvarez-Muniz, J., Arguelles, C. A., Ariga, A., Ariga, T., Aurisano, A., Autiero, D., Bishai, M., Bostan, N., Bustamante, M., Cummings, A., Decoene, V., de Gouvea, A., De Lellis, G., De Roeck, A., Denton, P. B., Di Crescenzo, A., Diwan, M., Farzan, Y., Fedynitch, A. & 46 flere, Feng, J. L., Fields, L. J., Garcia, A., Garzelli, M. V., Gehrlein, J., Glaser, C., Grzelak, K., Hallmann, S., Hewes, J., Indumathi, D., Ismail, A., Jana, S., Jeong, Y. S., Kelly, K. J., Klein, S. R., Kling, F., Kosc, T., Kose, U., Koskinen, D. Jason, Krizmanic, J., Lazar, J., Li, Y., Martinez-Soler, I., Mocioiu, I., Nam, J., Niess, V., Otte, N., Patel, S., Petti, R., Prechelt, R. L., Prohira, S., Rajaoalisoa, M., Reno, M. H., Safa, I., Sarasty-Segura, C., Senthil, R. T., Stachurska, J., Tomalak, O., Trojanowski, S., Wendell, R. A., Williams, D., Wissel, S., Yaeggy, B., Zas, E., Zhelmin, P. & Zhu, J., 11 okt. 2022, I: Journal of Physics G: Nuclear and Particle Physics. 49, 11, 148 s., 110501.

The ultra-high-energy neutrino-nucleon cross section: measurement forecasts for an era of cosmic EeV-neutrino discovery
Valera, Victor, Bustamante, Mauricio & Glaser, C., 20 jun. 2022, I: Journal of High Energy Physics. 2022, 6, 72 s., 105.

PLEvM: A global and distributed monitoring system of high-energy astrophysical neutrinos
Schumacher, L., Huber, M., Agostini, M., Bustamante, Mauricio, Oikonomou, F. & Resconi, E., 27 jul. 2021, I: P o S - Proceedings of Science. 395, 8 s., 1185.

Flavors of astrophysical neutrinos with active-sterile mixing
Ahlers, Markus Tobias, Bustamante, Mauricio & Willesen, N. G. N., 15 jul. 2021, I: Journal of Cosmology and Astroparticle Physics. 2021, 7, 20 s., 029.

The Future of High-Energy Astrophysical Neutrino Flavor Measurements

Song, N., Weishi Li, S., Argüelles, C., Bustamante, Mauricio & Vincent, A. C., 12 jul. 2021, I: P o S - Proceedings of Science. 395, 8 s., ICRC 1178.

The POEMMA (Probe of Extreme Multi-Messenger Astrophysics) observatory

Olinto, A., Krizmanic, J., Adams, J. H., Aloisio, R., Anchordoqui, L. A., Anzalone, A., Bagheri, M., Barghini, D., Battisti, M., Bergman, D. R., Bertaina, M. E., Bertone, P. F., Bisconti, F., Bustamante, M., Cafagna, F., Caruso, R., Casolino, M., Cerny, K., Christl, M. J., Cummings, A. L. & 31 flere, De Mitri, Diesing, R., Engel, R., Eser, J., Fang, K., Fenu, F., Filippatos, G., Gazda, E., Guepin, C., Haungs, A., Hays, E. A., Judd, E. G., Klimov, P., Kungel, Kuznetsov, E., Mackovjak, S., Mandat, D., Marcelli, L., McEnery, J., Medina-Tanco, G., Merenda, K., Meyer, S. S., Mitchell, J. W., Miyamoto, H., Nachtman, J. M., Neronov, A., Oikonomou, F., Otte, A. N., Ricci, M., Unger, M. & POEMMA Collaboration, P. C., jun. 2021, I: Journal of Cosmology and Astroparticle Physics. 2021, 6, 66 s., 007.

The Future of High-Energy Astrophysical Neutrino Flavor Measurements

Song, N., Weishi Li, S., Argüelles, C., Bustamante, Mauricio & Vincent, A. C., 20 apr. 2021, I: Journal of Cosmology and Astroparticle Physics. 2021, 04, 44 s., 054.

Core-collapse supernovae stymie secret neutrino interactions

Shalgar, Shashank, Tamborra, Irene & Bustamante, Mauricio, 2021, I: Physical Review D. 103, 9 s., 123008.

Using High-Energy Neutrinos As Cosmic Magnetometers

Bustamante, Mauricio & Tamborra, Irene, 4 dec. 2020, I: Physical Review D. 102, 12, 15 s., 123008.

The Giant Radio Array for Neutrino Detection (GRAND): Science and design

Alvarez-Muniz, J., Batista, R. A., Balagopal, A., Bolmont, J., Bustamante, M., Carvalho, W., Charrier, D., Cognard, I., Decoene, V., Denton, P. B., De Jong, S., De Vries, K. D., Engel, R., Fang, K., Finley, C., Gabici, S., Gou, Q., Gu, J., Guepin, C., Hu, H. & 31 flere, Huang, Y., Kotera, K., Le Coz, S., Lenain, J., Lu, G., Martineau-Huynh, O., Mostafa, M., Mottez, F., Murase, K., Niess, V., Oikonomou, F., Pierog, T., Qian, X., Qin, B., Ran, D., Renault-Tinacci, N., Roth, M., Schroeder, F. G., Schussler, F., Tasse, C., Timmermans, C., Tueros, M., Wu, X., Zarka, P., Zech, A., Zhang, B. T., Zhang, J., Zhang, Y., Zheng, Q., Zilles, A. & GRAND Collaboration, G. C., 4 aug. 2020, I: Science China Physics, Mechanics and Astronomy. 63, 1, 43 s., 219501.

Fundamental Physics with High-Energy Astrophysical Neutrinos Today and in the Future

Argüelles, C., Bustamante, Mauricio, Kheirandish, A., Palomares-Ruiz, S., Salas-Salvadó, J. & Vincent, A. C., 22 jul. 2020, I: P o S - Proceedings of Science. 358, 8 s., 849.

Pushing the Energy and Cosmic Frontiers with High-Energy Astrophysical Neutrinos¹

Bustamante, Mauricio, 12 maj 2020, I: Journal of Physics: Conference Series (Online). 1586, 9 s., 012041.

Bounds on secret neutrino interactions from high-energy astrophysical neutrinos

Bustamante, Mauricio, Rosenstrøm, C. A., Shalgar, Shashank & Tamborra, Irene, 2020, I: Physical Review D. 101, 12, 12 s., 123024.

Observing GeV Neutrino Transients in the Multi-Messenger Era

Ahmed Maouloud, S. E. M., de Wasseige, G., Ahlers, Markus Tobias, Bustamante, Mauricio & van Elewyck, V., 22 jul. 2019, I: P o S - Proceedings of Science. 358, 8 s., 1023.

Fundamental physics with high-energy cosmic neutrinos today and in the future

Argüelles, C. A., Bustamante, Mauricio, Kheirandish, A., Palomares-Ruiz, S., Salvado, J. & Vincent, A. C., 19 jul. 2019, I: P o S - Proceedings of Science. 8 s.

Astrophysics Uniquely Enabled by Observations of High-Energy Cosmic Neutrinos

Vieregg, A., Ackermann, M., Ahlers, Markus Tobias, Bustamante, Mauricio, Anchordoqui, L., Connolly, A., Deaconu, C., Grant, D., Gorham, P., Halzen, F., Karle, A., Kotera, K., Kowalski, M., Mostafa, M. A., Murase, K., Nelles, A., Olinto, A., Romero-Wolf, A. & Wissel, S., 31 maj 2019, I: Bulletin of the American Astronomical Society. 51, 3, 26 s.

Fundamental Physics with High-Energy Cosmic Neutrinos

Vieregg, A., Ackermann, M., Ahlers, Markus Tobias, Anchordoqui, L., Bustamante, Mauricio, Connolly, A., Deaconu, C., Grant, D., Gorham, P., Halzen, F., Karle, A., Kotera, K., Kowalski, M., Mostafa, M. A., Murase, K., Nelles, A., Olinto, A., Romero-Wolf, A. & Wissel, S., 31 maj 2019, I: Bulletin of the American Astronomical Society. 51, 3, 24 s., 215.

Echo Technique to Distinguish Flavors of Astrophysical Neutrinos

Li, S. W., Bustamante, Mauricio & Beacom, J. F., 16 apr. 2019, I: Physical Review Letters. 122, 15, 7 s., 151101.

Open Questions in Cosmic-Ray Research at Ultrahigh Energies

Batista, R. A., Biteau, J., Bustamante, Mauricio, Dolag, K., Engel, R., Fang, K., Kampert, K., Kostunin, D., Mostafa, M., Murase, K., Sigl, G., Oikonomou, F., Olinto, A. V., Panasyuk, M. I., Taylor, A. & Unger, M., 15 mar. 2019, I: Frontiers in Astronomy and Space Sciences. 6, 35 s., 23.

Universe's Worth of Electrons to Probe Long-Range Interactions of High-Energy Astrophysical Neutrinos

Bustamante, Mauricio & Agarwalla, S. K., 12 feb. 2019, I: Physical Review Letters. 122, 6, 8 s., 061103.

Inferring the flavor of high-energy astrophysical neutrinos at their sources

Bustamante, Mauricio & Ahlers, Markus Tobias, 29 jan. 2019, I: Physical Review Letters. 122, 7 s., 241101.

Extracting the Energy-Dependent Neutrino-Nucleon Cross Section above 10 TeV Using IceCube Showers

Bustamante, Mauricio & Connolly, A., 28 jan. 2019, I: Physical Review Letters. 122, 4, 9 s., 041101.

Unitarity bounds of astrophysical neutrinos

Ahlers, Markus Tobias, Bustamante, Mauricio & Mu, S., 28 dec. 2018, I: Physical Review D. 98, 12, 8 s., 123023.

POEMMA: Probe Of Extreme Multi-Messenger Astrophysics

Olinto, A. V., Adams, J. H., Aloisio, R., Anchordoqui, L. A., Bergman, D. R., Bertaina, M. E., Bertone, P., Bustamante, M., Christl, M. J., Csorna, S. E., Eser, J. B., Fenu, F., Guépin, C., Hays, E. A., Hunter, S., Judd, E., Jun, I., Kotera, K., Krizmanic, J. F., Kuznetsov, E. & 21 flere, Mackovjak, S., Martinez-Sierra, L. M., Mastafa, M., Matthews, J. N., McEnery, J., Mitchell, J. W., Neronov, A., Otte, A. N., Parizot, E., Paul, T. C., Perkins, J. S., Prevot, G., Reardon, P., Reno, M. H., Sarazin, F., Shinozaki, K., Stecker, F., Streitmatter, R., Venters, T., Wiencke, L. & Young, R. M., 25 aug. 2018, I: P o S - Proceedings of Science. 301, 8 s., 542.

The Giant Radio Array for Neutrino Detection

Martineau-Huynh, O., Bustamante, M., Carvalho, W., Charrier, D., Jong, S. D., Vries, K. D. D., Fang, K., Feng, Z., Finley, C., Gou, Q., Gu, J., Hu, H., Kotera, K., Coz, S. L., Medina, C., Murase, K., Niess, V., Oikonomou, F., Timmermans, C., Wang, Z. & 2 flere, Wu, X. & Zhang, Y., 5 feb. 2017, I: E P J Web of Conferences. 135, 02001.

Constraints on the Ultra-High Energy Neutrino Flux from Gamma-Ray Bursts from a Prototype Station of the Askaryan Radio Array

Allison, P., Auffenberg, J., Bard, R., Beatty, J. J., Besson, D. Z., Bora, C., Chen, C. -C., Chen, P., Connolly, A., Davies, J. P., DuVernois, M. A., Fox, B., Gorham, P. W., Hanson, K., Hill, B., Hoffman, K. D., Hong, E., Hu, L. -C., Ishihara, A., Karle, A. & 32 flere, Kelley, J., Kravchenko, I., Landsman, H., Landrie, A., Li, C. -, Liu, T., Lu, M. -, Maunu, R., Mase, K., Meures, T., Miki, C., Nam, J., Nichol, R. J., Nir, G., O'Murchadha, A., Pfendner, C. G., Ratzlaff, K., Rotter, B., Sandstrom, P., Seckel, D., Shultz, A., Song, M., Stockham, J., Stockham, M., Sullivan, M., Touart, J., Tu, H. -, Varner, G. S., Yoshida, S., Young, R., Bustamante, Mauricio & Guetta, D., 1 feb. 2017, I: Astroparticle Physics. 88, s. 7-16

Testing decay of astrophysical neutrinos with incomplete information

Bustamante, Mauricio, Beacom, J. F. & Murase, K., 6 okt. 2016, I: Physical Review D. 95, 063013.

Cosmogenic Neutrinos Challenge the Cosmic Ray Proton Dip Model

Heinze, J., Boncioli, D., Bustamante, Mauricio & Winter, W., 11 jul. 2016, I: The Astrophysical Journal. 825, 2, 122.

Multi-messenger light curves from gamma-ray bursts in the internal shock model

Bustamante, Mauricio, Heinze, J., Murase, K. & Winter, W., 7 jun. 2016, I: *Astrophysical Journal*. 837, 33.

Searching for cavities of various densities in the Earth's crust with a low-energy electron-antineutrino beta-beam

Argüelles, C. A., Bustamante, Mauricio & Gago, A. M., 15 jul. 2015, I: *Modern Physics Letters A*. 30, 29, 1550146.

Theoretically palatable flavor combinations of astrophysical neutrinos

Bustamante, Mauricio, Beacom, J. F. & Winter, W., 8 jun. 2015, I: *Physical Review Letters*. 115, 161302.

Neutrino and cosmic-ray emission from multiple internal shocks in gamma-ray bursts

Bustamante, Mauricio, Baerwald, P., Murase, K. & Winter, W., 9 sep. 2014, I: *Nature Communications*. 6, 6783.

UHE neutrino and cosmic ray emission from GRBs: revising the models and clarifying the cosmic ray-neutrino connection

Bustamante, Mauricio, Baerwald, P. & Winter, W., 6 feb. 2014, I: *AIP Conference Proceedings*. 1630, 1

Are gamma-ray bursts the sources of ultra-high energy cosmic rays?

Baerwald, P., Bustamante, Mauricio & Winter, W., 8 jan. 2014, I: *Astrophysical Journal*. 62, s. 66-91

Escape and propagation of UHECR protons and neutrons from GRBs, and the cosmic ray-neutrino connection

Bustamante, Mauricio, Baerwald, P. & Winter, W., 12 jun. 2013, I: *Brazilian Journal of Physics*. 44

UHECR escape mechanisms for protons and neutrons from GRBs, and the cosmic ray-neutrino connection

Baerwald, P., Bustamante, Mauricio & Winter, W., 25 jan. 2013, I: *Astrophysical Journal*. 768, 186.

Neutrino Decays over Cosmological Distances and the Implications for Neutrino Telescopes

Baerwald, P., Bustamante, Mauricio & Winter, W., 22 aug. 2012, I: *Journal of Cosmology and Astroparticle Physics*. 2012

SUSY Renormalization Group Effects in Ultra High Energy Neutrinos

Bustamante, Mauricio, Gago, A. M. & Jones-Perez, J., 13 dec. 2010, I: *Journal of High Energy Physics*. 2011, 05, 133.

IceCube expectations for two high-energy neutrino production models at active galactic nuclei

Argüelles, C. A., Bustamante, Mauricio & Gago, A. M., 8 aug. 2010, I: *Journal of Cosmology and Astroparticle Physics*. 2010, 12, 005.

Energy-independent new physics in the flavour ratios of high-energy astrophysical neutrinos

Bustamante, Mauricio, Gago, A. M. & Pena-Garay, C., 27 jan. 2010, I: *Journal of High Energy Physics*. 2010, 066

Beyond the Standard Model for Montaneros

Bustamante, Mauricio, Cieri, L. & Ellis, J., 23 nov. 2009

High energy astrophysical neutrino flux and modified dispersion relations

Alba, J. L. B., Bustamante, Mauricio, Gago, A. M. & Miranda, O. G., 11 jul. 2009, I: *International Journal of Modern Physics A*. 24, 31, 5819.

Extreme scenarios of new physics in the UHE astrophysical neutrino flavour ratios

Bustamante, Mauricio, Gago, A. M. & Pena-Garay, C., 29 jun. 2009, I: *Journal of Physics: Conference Series*. 171, 012048.

Aktiviteter

TeV Particle Astrophysics 2017

Bustamante, Mauricio (Deltager)

7 aug. 2017 → 11 aug. 2017

Advances in Space Research (Tidsskrift)

Bustamante, Mauricio (Redaktør)

2017 → ...

Astrophysical Journal (Tidsskrift)

Bustamante, Mauricio (Redaktør)

2015 → ...

International Journal of Modern Physics A (Tidsskrift)

Bustamante, Mauricio (Redaktør)

2015 → ...

Physical Review D - Particles, Fields, Gravitation and Cosmology (Tidsskrift)

Bustamante, Mauricio (Redaktør)

2015 → ...

Physical Review Letters (Tidsskrift)

Bustamante, Mauricio (Redaktør)

2015 → ...