

Publikationen von [Eckart Marsch](#) im Zeitraum 2012-2023 mit der Zugehörigkeit zum IEAP der CAU zu Kiel

[Eckart Marsch](#), *On the Majorana Equation: Relations between Its Complex Two-Component and Real Four-Component Eigenfunctions*, **International Scholarly Research Network ISRN Mathematical Physics Volume** (2012), Article ID 760239, 17 pages; doi:10.5402/2012/760239

[Eckart Marsch](#) and Chuanyi Tu, *Diffusion in velocity space of solar wind protons exposed to parallel and oblique plasma waves*, **AIP Conf. Proc.** **1539**, 243-246 (2013) doi: 10.1063/1.4811033

Jiansen He, Chuanyi Tu, [Eckart Marsch](#), Sofiane Bourouaine, and Zhongtian Pei, *RADIAL EVOLUTION OF THE WAVEVECTOR ANISOTROPY OF SOLAR WIND TURBULENCE BETWEEN 0.3 AND 1 AU*, **The Astrophys. J.**, **773:72** (12pp) (2013) doi:10.1088/0004-637X/773/1/72

[Eckart Marsch](#), *A New Route to the Majorana Equation*, **Symmetry** **5**, 271-286 (2013) doi:10.3390/sym5040271

Xin Wang, Chuanyi Tu, Jiansen He, [Eckart Marsch](#), and Linghua Wang, *ON INTERMITTENT TURBULENCE HEATING OF THE SOLAR WIND: DIFFERENCES BETWEEN TANGENTIAL AND ROTATIONAL DISCONTINUITIES*, **Astrophys. J. Lett.** **772:L14** (7pp) (2013) doi:10.1088/2041-8205/772/2/L14

Liping Yang, Jiansen He, Hardi Peter, Chuanyi Tu, Wenlei Chen, Lei Zhang, [Eckart Marsch](#), Linghua Wang, Xueshang Feng, and Limei Yan, *INJECTION OF PLASMA INTO THE NASCENT SOLAR WIND VIA RECONNECTION DRIVEN BY SUPERGRANULAR ADVECTION*, **Astrophys. J.** **770:6** (12pp) (2013) doi:10.1088/0004-637X/770/1/6

Shuo Yao, J.-S. He, C.-Y. Tu, L.-H. Wang, and [E. Marsch](#), *SMALL-SCALE PRESSURE-BALANCED STRUCTURES DRIVEN BY OBLIQUE SLOW MODE WAVES MEASURED IN THE SOLAR WIND*, **Astrophys. J.** **774:59** (9pp) (2013) doi:10.1088/0004-637X/774/1/59

Shuo Yao, J.-S. He, C.-Y. Tu, L.-H. Wang, and [E. Marsch](#), *SMALL-SCALE PRESSURE-BALANCED STRUCTURES DRIVEN BY MIRROR-MODE WAVES IN THE SOLAR WIND*, **Astrophys. J.** **776:94** (7pp) (2013) doi:10.1088/0004-637X/776/2/94

Y. G. Maneva, J. A. Araneda, and [E. Marsch](#), *REGULATION OF ION DRIFTS AND ANISOTROPIES BY PARAMETRICALLY UNSTABLE FINITE-AMPLITUDE ALFVEN-CYCLOTRON WAVES IN THE FAST SOLAR WIND*, **Astrophys. J.** **783:139** (9pp) (2014) doi:10.1088/0004-637X/783/2/139

Perrone, D., S. Bourouaine, F. Valentini, [E. Marsch](#), and P. Veltri, *Generation of temperature anisotropy for alpha particle velocity distributions in solar wind at 0.3 AU: Vlasov simulations and*

Helios observations, **J. Geophys. Res. Space Physics**, 119, 2400–2410 (2014)
doi:10.1002/2013JA019564

Xin Wang, Chuanyi Tu, Jiansen He, [Eckart Marsch](#), and Linghua Wang, *THE INFLUENCE OF INTERMITTENCY ON THE SPECTRAL ANISOTROPY OF SOLAR WIND TURBULENCE*, **Astrophys. J. Lett.** **783:L9** (7pp) (2014) doi:10.1088/2041-8205/783/1/L9

L. Zhang, L.-P. Yang, J.-S. He, C.-Y. Tu, L.-H. Wang, [E. Marsch](#), and X.-S. Feng, *Identification of slow magnetosonic wave trains and their evolution in 3-D compressible turbulence simulation*, **Ann. Geophys.** **33**, 13–23 (2015) doi:10.5194/angeo-33-13-2015

[Eckart Marsch](#), *A Real Version of the Dirac Equation and Its Coupling to the Electromagnetic Field*, **Journal of Modern Physics** **6**, 1-11 (2015), <http://www.scirp.org/journal/jmp>
<http://dx.doi.org/10.4236/jmp.2015.61001>

Jiansen He, Linghua Wang, Chuanyi Tu, [Eckart Marsch](#), and Qiugang Zong, *EVIDENCE OF LANDAU AND CYCLOTRON RESONANCE BETWEEN PROTONS AND KINETIC WAVES IN SOLAR WIND TURBULENCE*, **Astrophys. J. Lett.** **800:L31** (7pp) (2015) doi:10.1088/2041-8205/800/2/L31

Lei Zhang, Jiansen He, Chuanyi Tu, Liping Yang, Xin Wang, [Eckart Marsch](#), and Linghua Wang *OCCURRENCE RATES AND HEATING EFFECTS OF TANGENTIAL AND ROTATIONAL DISCONTINUITIES AS OBTAINED FROM THREE-DIMENSIONAL SIMULATION OF MAGNETOHYDRODYNAMIC TURBULENCE*, **Astrophys. J. Lett.** **804:L43** (7pp) (2015) doi:10.1088/2041-8205/804/2/L43

[Eckart Marsch](#), *On Charge Conjugation, Chirality and Helicity of the Dirac and Majorana Equation for Massive Leptons*, **Symmetry** **7**, 450-463 (2015) doi:10.3390/sym7020450

Yasuhito Narita and [Eckart Marsch](#), *KINETIC SLOW MODE IN THE SOLAR WIND AND ITS POSSIBLE ROLE IN TURBULENCE DISSIPATION AND ION HEATING*, **Astrophys. J.** **805:24** (16pp) (2015)
doi:10.1088/0004-637X/805/1/24

Wang, X., C. Tu, L. Wang, J. He, and [E. Marsch](#), *The upstream propagating Alfvénic fluctuations with power law spectra in the upstream region of the Earth's bow shock*, **Geophys. Res. Lett.** **42** (2015)
doi:10.1002/2015GL063893.

Jiansen He, Zhongtian Pei, Linghua Wang, Chuanyi Tu, [Eckart Marsch](#), Lei Zhang, and Chadi Salem, *SUNWARD PROPAGATING ALFVÉN WAVES IN ASSOCIATION WITH SUNWARD DRIFTING PROTON BEAMS IN THE SOLAR WIND*, **Astrophys. J.** **805:176 (9pp)** (2015) doi:10.1088/0004-637X/805/2/176

Liping Yang, Lei Zhang, Jiansen He, Chuanyi Tu, Linghua Wang, [Eckart Marsch](#), Xin Wang, Shaohua Zhang, and Xueshang Feng, *THE FORMATION OF ROTATIONAL DISCONTINUITIES IN COMPRESSIVE THREE-DIMENSIONAL MHD TURBULENCE*, **Astrophys. J.** **809:155 (7pp)** (2015)
doi:10.1088/0004-637X/809/2/155

[E. Marsch](#) and Y. Narita, *Fermion unification model based on the intrinsic SU(8) symmetry of a generalized Dirac equation*, **Front. Phys.** **3:82** (2015) doi:10.3389/fphy.2015.00082

Xin Wang, Chuanyi Tu, Jiansen He, [Eckart Marsch](#), Linghua Wang, and Chadi Salem, *THE SPECTRAL FEATURES OF LOW-AMPLITUDE MAGNETIC FLUCTUATIONS IN THE SOLAR WIND AND THEIR COMPARISON WITH MODERATE-AMPLITUDE FLUCTUATIONS*, **Astrophys. J. Lett.** **810:L21** (7pp) (2015) doi:10.1088/2041-8205/810/2/L21

Jiansen He, Chuanyi Tu, [Eckart Marsch](#), Christopher H. K. Chen, Linghua Wang, Zhongtian Pei, Lei Zhang, Chadi S. Salem, and Stuart D. Bale, *PROTON HEATING IN SOLAR WIND COMPRESSIBLE TURBULENCE WITH COLLISIONS BETWEEN COUNTER-PROPAGATING WAVES*, **Astrophys. J. Lett.** **813:L30** (6pp), (2015) doi:10.1088/2041-8205/813/2/L30

Xin Wang, Chuanyi Tu, [Eckart Marsch](#), Jiansen He, and Linghua Wang, *SCALE-DEPENDENT NORMALIZED AMPLITUDE AND WEAK SPECTRAL ANISOTROPY OF MAGNETIC FIELD FLUCTUATIONS IN THE SOLAR WIND TURBULENCE*, **Astrophys. J.** **816:15** (7pp) (2016) doi:10.3847/0004-637X/816/1/15

Limei Yan, Jiansen He, Lei Zhang, Chuanyi Tu, [Eckart Marsch](#), Christopher H. K. Chen, Xin Wang, Linghua Wang, and Robert T. Wicks, *SPECTRAL ANISOTROPY OF ELSÄSSER VARIABLES IN TWO-DIMENSIONAL WAVE-VECTOR SPACE AS OBSERVED IN THE FAST SOLAR WIND TURBULENCE*, **Astrophys. J. Lett.** **816:L24** (7pp) (2016) doi:10.3847/2041-8205/816/2/L24

[E. Marsch](#) and Y. Narita, *Fundamental Fermion Interactions via Vector Bosons of Unified $SU(2)\times SU(4)$ Gauge Fields*, **Front. Phys.** **4:5** (2016) doi: 10.3389/fphy.2016.00005

Chuanyi Tu, Xin Wang, Jiansen He, [Eckart Marsch](#), and Linghua Wang, *Two cases of convecting structure in the slow solar wind turbulence*, AIP Conference Proceedings **1720**, 040017 (2016) doi: 10.1063/1.4943828

Wenzhi Ruan, Jiansen He, Lei Zhang, Christian Vocks, [Eckart Marsch](#), Chuanyi Tu, Hardi Peter, and Linghua Wang, *Synthetic spectral analysis of a kinetic model for slow-magnetosonic waves in solar Corona*, AIP Conference Proceedings **1720**, 020004 (2016) doi: 10.1063/1.4943805

Xin Wang, Chuanyi Tu, Jiansen He, [Eckart Marsch](#), and Linghua Wang, *On the weakly anisotropic nature of the time-stationary turbulence in the solar wind*, AIP Conference Proceedings **1720**, 040019 (2016) doi: 10.1063/1.4943830

Xin Wang, Chuanyi Tu, Jiansen He, [Eckart Marsch](#), and Linghua Wang, *Reexamination of data analysis for -2 spectral index at small ϑ VB angle*, AIP Conference Proceedings **1720**, 040020 (2016) doi: 10.1063/1.4943831

Y. Narita, [E. Marsch](#), C. Perschke, K.-H. Glassmeier, U. Motschmann, and H. Comisel, *Wave-particle resonance condition test for ion-kinetic waves in the solar wind*, **Ann. Geophys.** **34**, 393–398 (2016) doi:10.5194/angeo-34-393-2016

Zhongtian Pei, Jiansen He, Xin Wang, Chuanyi Tu, [Eckart Marsch](#), Linghua Wang, and Limei Yan, *Influence of intermittency on the anisotropy of magnetic structure functions of solar wind turbulence*, **J. Geophys. Res. Space Physics** **121**, 911–924 (2016) doi:10.1002/2015JA021057

Y. Narita, [E. Marsch](#), C. Perschke, K.-H. Glassmeier, U. Motschmann, and H. Comisel, *“Wave-particle resonance condition test for ion-kinetic waves in the solar wind” published in Ann. Geophys., 34, 393–398, 2016, Corrigendum to Ann. Geophys., 34, 393–398 (2016) doi: 10.5194/angeo-34-393-2016-corrigendum*

Wenzhi Ruan, Jiansen He, Lei Zhang, Christian Vocks, [Eckart Marsch](#), Chuanyi Tu, Hardi Peter, and Linghua Wang, *KINETIC SIMULATION OF SLOW MAGNETOSONIC WAVES AND QUASI-PERIODIC UPFLOWS IN THE SOLAR CORONA*, **Astrophys. J.** **825:58** (9pp) (2016) doi:10.3847/0004-637X/825/1/58

Liping Yang, Jiansen He, Chuanyi Tu, Shengtai Li, Lei Zhang, [Eckart Marsch](#), Linghua Wang, Xin Wang, and Xueshang Feng, *Multiscale Pressure-Balanced Structures in Three-dimensional Magnetohydrodynamic Turbulence*, **Astrophys. J.** **836:69** (8pp) (2017) doi:10.3847/1538-4357/836/1/69

[Eckart Marsch](#), *Relativistic wave equation for a massive charged particle with arbitrary spin*, **Eur. Phys. J. Plus** **132: 188** (2017) doi:10.1140/epjp/i2017-11460-6

Liping Yang, Jiansen He, Chuanyi Tu, Shengtai Li, Lei Zhang, Xin Wang, [Eckart Marsch](#), and Linghua Wang, *Influence of Intermittency on the Quasi-perpendicular Scaling in Three-dimensional Magnetohydrodynamic Turbulence*, **Astrophys. J.** **846:99** (10pp) (2017) doi:10.3847/1538-4357/aa7e7c

[Eckart Marsch](#), *Solar wind and kinetic heliophysics*, **Ann. Geophys.**, **36**, 1607–1630 (2018) <https://doi.org/10.5194/angeo-36-1607-2018>

[Eckart Marsch](#), *Fermion Colour and Flavour Originating from Multiple Representations of the Lorentz Group and Clifford Algebra*, **Physical Science International Journal**, 23(3): 1-13; Article no.PSIJ.51873 (2019)

SPICE Consortium: M. Anderson, T. Appourchaux, F. Auchère, R. Aznar Cuadrado, J. Barbay, F. Baudin, S. Beardsley, K. Bocchialini, B. Borgo, D. Bruzzi, E. Buchlin, G. Burton, V. Büchel, M. Caldwell, S. Caminade, M. Carlsson, W. Curdt, J. Davenne, J. Davila, C. E. DeForest, G. Del Zanna, D. Drummond, J. Dubau, C. Dumesnil, G. Dunn, P. Eccleston, A. Fludra, T. Fredvik, A. Gabriel, A. Giunta, A. Gottwald, D. Griffin, T. Grundy, S. Guest, M. Gyo, M. Haberreiter, V. Hansteen, R. Harrison, D. M. Hassler, S. V. H. Haugan, C. Howe, M. Janvier, R. Klein, S. Koller, T. A. Kucera, D. Kouliche, [E. Marsch](#), A. Marshall, G. Marshall, S. A. Matthews, C. McQuirk, S. Meining, C. Mercier, N. Morris, T. Morse, G. Munro, S. Parenti, C. Pastor-Santos, H. Peter, D. Pfi_ner, P. Phelan, A. Philippon, A. Richards, K. Rogers, C. Sawyer, P. Schlatter, W. Schmutz, U. Schühle, B. Shaughnessy, S. Sidher, S. K. Solanki, R. Speight, M. Spescha, N. Szewc, C. Tamiatto, L. Teriaca, W. Thompson, I. Tosh, S. Tustain, J.-C. Vial, B. Walls, N. Waltham, R. Wimmer-Schweingruber, S. Woodward, P. Young, A. De Groof, A. Pacros, D. Williams, D. Müller, *The Solar Orbiter SPICE instrument, An extreme UV imaging spectrometer*, **Astron. & Astrophys.**, (2019) <https://doi.org/10.1051/0004-6361/201935574>

D. Müller, O.C. St. Cyr, I. Zouganelis, H.R. Gilbert, R. Marsden, T. Nieves-Chinchilla, E. Antonucci, F. Auchère, D. Berghmans, T. Horbury, R.A. Howard, S. Krucker, M. Maksimovic, C.J. Owen, P. Rochus, J. Rodriguez-Pacheco, M. Romoli, S.K. Solanki, R. Bruno, M. Carlsson, A. Fludra, L. Harra, D.M. Hassler, S. Livi, P. Louarn, H. Peter, U. Schühle, L. Teriaca, J.C. del Toro Iniesta, R.F. Wimmer-Schweingruber, [E. Marsch](#), M. Velli, A. De Groof, A. Walsh, D. Williams, *The Solar Orbiter mission-Science overview*, **Astron. & Astrophys.** **642**, A1 (2020) <https://doi.org/10.1051/0004-6361/202038467>

P. Rochus, F. Auchère, D. Berghmans, L. Harra, W. Schmutz, U. Schühle, P. Addison, T. Appourchaux, R. Aznar Cuadrado, D. Baker, J. Barbay, D. Bates, A. BenMoussa, M. Bergmann, C. Beurthe, B. Borgo,

K. Bonte, M. Bouzit, L. Bradley, V. Büchl, E. Buchlin, J. Büchner, F. Cabé, L. Cadiergues, M. Chaigneau, B. Chares, C. Choque Cortez, P. Coker, M. Condamin, S. Coumar, W. Curdt, J. Cutler, D. Davies, G. Davison, J.-M. Defise, G. Del Zanna, F. Delmotte, V. Delouille, L. Dolla, C. Dumesnil, F. Dürig, R. Enge, S. François, J.-J. Fourmond, J.-M. Gillis, B. Giordanengo, S. Gissot, L. M. Green, N. Guerreiro, A. Guilbaud, M. Gyo, M. Haberreiter, A. Hafiz, M. Hailey, J.-P. Halain, J. Hansotte, C. Hecquet, K. Heerlein, M.-L. Hellin, S. Hemsley, A. Hermans, V. Hervier, J.-F. Hochedez, Y. Houbrecht, K. Ihsan, L. Jacques, A. Jérôme, J. Jones, M. Kahle, T. Kennedy, M. Klaproth, M. Kolleck, S. Koller, E. Kotsialos, E. Kraaikamp, P. Langer, A. Lawrenson, J.-C. Le Clech', C. Lenaerts, S. Liebecq, D. Linder, D. M. Long, B. Mampaey, D. Markiewicz-Innes, B. Marquet, [E. Marsch](#), S. Matthews, E. Mazy, A. Mazzoli, S. Meining, E. Meltchakov, R. Mercier, S. Meyer, M. Monecke, F. Monfort, G. Morinaud, F. Moron, L. Mountney, R. Müller, B. Nicula, S. Parenti, H. Peter, D. Pfiffner, A. Philippon, I. Phillips, J.-Y. Plessier, E. Plyser, F. Rabecki, M.-F. Ravet-Krill, J. Rebellato, E. Renotte, L. Rodriguez, S. Roose, J. Rosin, L. Rossi, P. Roth, F. Rouesnel, M. Roulliay, A. Rousseau, K. Ruane, J. Scanlan, P. Schlatter, D. B. Seaton, K. Silliman, S. Smit, P. J. Smith, S. K. Solanki, M. Spescha, A. Spencer, K. Stegen, Y. Stockman, N. Swec, C. Tamiatto, J. Tandy, L. Teriaca, C. Theobald, I. Tychon, L. van Driel-Gesztelyi, C. Verbeeck, J.-C. Vial, S. Werner, M. J. West, D. Westwood, T. Wiegmann, G. Willis, B. Winter, A. Zerr, X. Zhang, and A. N. Zhukov *The Solar Orbiter EUV instrument: The Extreme Ultraviolet Imager*, **Astron. & Astrophys.** **642**, A8 (2020) <https://doi.org/10.1051/0004-6361/201936663>

T. S. Horbury, H. O'Brien, I. Carrasco Blazquez, M. Bendyk, P. Brown, R. Hudson, V. Evans, T. M. Oddy, C. M. Carr, T. J. Beek, E. Cupido, S. Bhattacharya, J.-A. Dominguez, L. Matthews, V. R. Myklebust, B. Whiteside, S. D. Bale, W. Baumjohann, D. Burgess, V. Carbone, P. Cargill, J. Eastwood, G. Erdös, L. Fletcher, R. Forsyth, J. Giacalone, K.-H. Glassmeier, M. L. Goldstein, T. Hoeksema, M. Lockwood, W. Magnes, M. Maksimovic, [E. Marsch](#), W. H. Matthaeus, N. Murphy, V. M. Nakariakov, C. J. Owen, M. Owens, J. Rodriguez-Pacheco, I. Richter, P. Riley, C. T. Russell, S. Schwartz, R. Vainio, M. Velli, S. Vennerstrom, R. Walsh, R. F. Wimmer-Schweingruber, G. Zank, D. Müller, I. Zouganelis, and A. P. Walsh, *The Solar Orbiter magnetometer*, **Astron. & Astrophys.** **642**, A9 (2020) <https://doi.org/10.1051/0004-6361/201937257>

[Eckart Marsch](#) and Yasuhito Narita, *Dirac equation based on the vector representation of the Lorentz group*, **Eur. Phys. J. Plus** 135:782 (2020) <https://doi.org/10.1140/epjp/s13360-020-00798-7>

[Eckart Marsch](#) and Yasuhito Narita, *Connecting in the Dirac Equation the Clifford Algebra of Lorentz Invariance with the Lie Algebra of SU(N) Gauge Symmetry*, **Symmetry** **13**, 475 (2021) <https://doi.org/10.3390/sym13030475>

[Eckart Marsch](#) and Yasuhito Narita, *CPTM Symmetry for the Dirac Equation and Its Extended Version Based on the Vector Representation of the Lorentz Group*, **Front. Phys.** 9:618392 (2021) <https://doi.org/10.3389/fphy.2021.618392>

[Eckart Marsch](#) and Yasuhito Narita, *Threefold spin helicity as possible origin of SU(3) gauge symmetry*, **Eur. Phys. J. Plus** 136:652 (2021) <https://doi.org/10.1140/epjp/s13360-021-01648-w>

[Eckart Marsch](#) and Yasuhito Narita, *On isospin and flavour of leptons and quarks* **Eur. Phys. J. Plus** 137:1353 (2022) <https://doi.org/10.1140/epjp/s13360-022-03556-z>

[Eckart Marsch](#) and Yasuhito Narita, *A New Route to Symmetries through the Extended Dirac Equation*, **Symmetry** **15**, 492 (2023)
<https://doi.org/10.3390/sym15020492>

[Eckart Marsch](#) and Yasuhito Narita *Hadronic Isospin Helicity and the Consequent SU(4) Gauge Theory*, **Symmetry** **1**, 0. (2023)
<https://doi.org/10.3390/sym1010000>

Ulrich von Kusserow und [Eckart Marsch](#)
Magnetisches Sonnensystem, Solare Eruptionen, Sonnenwinde und Weltraumwetter
Springer-Verlag GmbH Deutschland, ein Teil von Springer Nature, Berlin, Deutschland
ISBN978-3-662-65400-2 (2023)
<https://doi.org/10.1007/978-3-662-65401-9>

[Eckart Marsch](#) and Yasuhito Narita, *On the symmetries of elementary fermions*
Eur. Phys. J. Plus 139:278 (2024)
<https://doi.org/10.1140/epjp/s13360-024-05014-4>

Google Scholar Citation Index listet mehr als 500 Artikel (am 2. April 2024)
Total citations 23335; h-index=78; i10-index=246.