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PUBLICATIONS IN REFEREED JOURNALS

excluding refereed contributions to conference-related special journal issues.

== Publications in 2024

230. G. S. Adkins and U. D. Jentschura, “Irreducible Three-Loop Vacuum-Polarization Correction in Muonic Bound Systems”, *submitted (2024)*.
229. R. G. Bullis, U. D. Jentschura, and D. C. Yost, “Interferometric High-Frequency Differential Lock-In Probe for Laser-Induced Vacuum Birefringence”, *submitted (2024)*.
228. B. Ohayon and U. D. Jentschura, “Reexamination of vacuum-polarization corrections to the self-energy in muonic bound systems”, *Phys. Rev. A* **110**, 032820 (2024).
227. G. S. Adkins and U. D. Jentschura, “Relativistic and Reduced-Mass Corrections to Vacuum Polarization in Muonic Systems: Three-Photon Exchange, Gauge Invariance and Numerical Values”, *Phys. Rev. A* **110**, 032816 (2024).
226. L. T. Giorgini, U. D. Jentschura, E. M. Malatesta, T. Rizzo and J. Zinn-Justin, “Instantons in ϕ^4 Theories: Transseries, Virial Theorems and Numerical Aspects”, *Phys. Rev. D* **110**, 036003 (2024).
225. U. D. Jentschura, “Eighth-Order Foldy-Wouthuysen Transformation”, *Phys. Rev. A* **110**, 012808 (2024).
224. S. Hariharakrishnan, U. D. Jentschura, I. G. Máriań, K. Szabó and I. Nándori, “Perturbative versus Non-Perturbative Renormalization”, *J. Phys. G* **85**, 085005 (2024).
223. U. D. Jentschura and L. T. Giorgini, “Enhanced and Generalized One-Step Neville Algorithm: Fractional Powers and Access to the Convergence Rate”, *Comput. Phys. Commun.* **303**, 109280 (2024).
222. S. Laporta and U. D. Jentschura, “Dimensional Regularization and Two-Loop Vacuum Polarization Operator: Master Integrals, Analytic Results and Energy Shifts”, *Phys. Rev. D* **109**, 096020 (2024).
221. T. Das, C. A. Ullrich and U. D. Jentschura, “Retardation Effects in Atom-Wall Interactions”, *Phys. Rev. A* **109**, 022808 (2024).
220. U. D. Jentschura, “Revisiting Multipole Corrections to Atom-Wall Interactions with an Emphasis on α -Quartz, Hydrogen and Positronium”, *Phys. Rev. A* **109**, 012802 (2024).

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219. U. D. Jentschura and D. C. Yost, “Precision Rydberg State Spectroscopy with Slow Electrons and Proton Radius Puzzle”, *Phys. Rev. A* **108**, 062822 (2023).
218. U. D. Jentschura and C. Moore, “Quantum Electrodynamic Corrections for Quantum Cyclotron States”, *Phys. Rev. D* **108**, 036004 (2023).
217. U. D. Jentschura, “Algebraic Approach to Relativistic Landau Levels in the Symmetric Gauge”, *Phys. Rev. D* **108**, 016016 (2023).
216. U. D. Jentschura and C. Moore, “Logarithmic terms in atom-surface potentials: Limited applicability of rational approximations for intermediate distance”, *Phys. Rev. A* **108**, 012815 (2023).
215. U. D. Jentschura, “Apparatus-Dependent Corrections to $g - 2$ Revisited”, *Phys. Rev. D* **107**, 076014 (2023).
214. U. D. Jentschura and C. M. Adhikari, “Quantum Electrodynamics of Dicke States: Resonant One-Photon Exchange Energy and Entangled Decay Rate”, *Atoms* **11**, 10 (2023).
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213. J. Nicasio and U. D. Jentschura, “Dispersion of Ultra-Relativistic Tardyonic and Tachyonic Wave Packets on Cosmic Scales”, *Symmetry* **14**, 2596 (2022).
212. A. Wienczek, C. Moore and U. D. Jentschura, “Foldy-Wouthuysen Transformation in Strong Magnetic Fields and Relativistic Corrections for Quantum Cyclotron Energy Levels”, *Phys. Rev. A* **106**, 012816 (2022).
211. C. Moore, C. M. Adhikari, T. Das, L. Resch, C. A. Ullrich, and U. D. Jentschura, “Temperature-Dependent Dielectric Function of Intrinsic Silicon: Analytic Models and Atom-Surface Potentials”, *Phys. Rev. B* **106**, 045202 (2022).
210. L. T. Giorgini, U. D. Jentschura, E. M. Malatesta, G. Parisi, T. Rizzo and J. Zinn-Justin, “Correlation Functions of the Anharmonic Oscillator: Numerical Verification of Two-Loop Corrections to the Large-Order Behavior”, *Phys. Rev. D* **105**, 105012 (2022).
209. I. G. Máriań, U. D. Jentschura, N. Defenu, A. Trombettoni and I. Nándori, “Vacuum energy and renormalization of the field-independent term”, *JCAP (Journal of Cosmology and Astrophysics)* **2022_03**, 062 (2022).
208. C. M. Adhikari and U. D. Jentschura, “Long-Range Interactions for Hydrogen Atoms in Excited D States”, *Atoms* **10**, 6 (2022).
207. C. M. Adhikari, J. C. Canales, T. P. W. Arthanayaka, and U. D. Jentschura, “Magic Wavelengths for $1S-nS$ and $2S-nS$ Transitions in Hydrogenlike Systems”, *Atoms* **10**, 1 (2022).
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206. U. D. Jentschura, “Antimatter Free-Fall Experiments and Charge Asymmetry”, *Symmetry* **13**, 1192 (2021).
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205. U. D. Jentschura, “Antimatter Gravity: Second Quantization and Lagrangian Formalism”, *Physics* **2**, 397-411 (2020).

204. U. D. Jentschura, “Squeezing the Parameter Space for Lorentz Violation in the Neutrino Sector by Additional Decay Channels”, *Particles* **3**, 630–641 (2020).
203. I. G. Máriań, N. Defenu, U. D. Jentschura, A. Trombettoni, and I. Nándori, “Renormalization–Group Running Induced Cosmic Inflation”, *JCAP (Journal of Cosmology and Astrophysics)* **2020_06**, 028 (2020).
202. U. D. Jentschura, “Fifth Force and Hyperfine Splitting in Bound Systems”, *Phys. Rev. A* **101**, 062503 (2020).
201. L. T. Giorgini, U. D. Jentschura, E. M. Malatesta, T. Rizzo, G. Parisi, J. Zinn–Justin, “Two–Loop Corrections to the Large–Order Behavior of Correlation Functions in the One–Dimensional N –Vector Model”, *Phys. Rev. D* **101**, 125001 (2020).
- == Publications in 2019
200. U. D. Jentschura, “Equivalence Principle for Antiparticles and Its Limitations”, *Int. J. Mod. Phys. A* **34**, 1950180 (2019).
199. U. D. Jentschura, I. Nándori, and G. Somogyi, “Lorentz Breaking and $SU(2)_L \times U(1)_Y$ Gauge Invariance for Neutrinos”, *Int. J. Mod. Phys. E* **28**, 1950072 (2019).
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193. C. M. Adhikari and U. D. Jentschura, “Close Examination of the Ground–State Casimir–Polder Interaction: Time–Ordered Versus Covariant Formalism and Radiative Corrections”, *J. Phys. B* **51**, 215002 (2018).
192. U. D. Jentschura, “Gravitational Effects in g Factor Measurements and High–Precision Spectroscopy: Limits of Einstein’s Equivalence Principle”, *Phys. Rev. A* **98**, 032508 (2018).
191. U. D. Jentschura and C. M. Adhikari, “Relativistic and Radiative Corrections to the Dynamic Stark Shift: Gauge Invariance and Transition Currents in the Velocity Gauge”, *Phys. Rev. A* **97**, 062120 (2018).

190. U. D. Jentschura and I. Nándori, “Atomic Physics Constraints on the X Boson”, *Phys. Rev. A* **97**, 042502 (2018).
189. U. D. Jentschura, “Enzyme-Supported Immunotherapy: Case Study and Possible Generalizations”, *Journal of Cancer Therapy* **9**, 156-162 (2018).
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187. U. D. Jentschura and C. M. Adhikari, “Long-Range Interactions for Hydrogen: $6P-1S$ and $6P-2S$ ”, *Atoms* **5**, 48 (2017).
186. U. D. Jentschura and I. Nándori, “Neutrino Pair Cerenkov Radiation for Tachyonic Neutrinos”, *Adv. High Energy Phys.* **2017**, 9850312 (2017).
185. J. H. Noble, M. Lubasch and J. Stevens and U. D. Jentschura, “Diagonalization of Complex Symmetric Matrices: Generalized Householder Reflections, Iterative Deflation and Implicit Shifts”, *Comput. Phys. Commun.* **221**, 304–316 (2017).
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183. C. M. Adhikari, V. Debierre and U. D. Jentschura, “Long-range interactions of hydrogen atoms in excited states. III. $nS-1S$ interactions for $n \geq 3$ ”, *Phys. Rev. A* **96**, 032702 (2017).
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- 176. U. D. Jentschura, “Non-Resonant Two-Photon Transitions in Length and Velocity Gauges”, *Phys. Rev. A* **94**, 022117 (2016).
- 175. U. D. Jentschura, M. Janke and M. DeKieviet, “Theory of Non-Contact Friction for Atom-Surface Interactions”, *Phys. Rev. A* **94**, 022510 (2016).
- 174. U. D. Jentschura and R. Ehrlich, “Lepton-pair Čerenkov radiation emitted by tachyonic neutrinos: Lorentz-covariant approach and Ice Cube data”, *Adv. High Energy Phys.* **2016**, 4764981 (2016).
- 173. J. H. Joble and U. D. Jentschura, “Dirac Hamiltonian and Reissner-Nordström Metric: Coulomb Interaction in Curved Space-Time”, *Phys. Rev. A* **93**, 032108 (2016).

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- 172. U. D. Jentschura, “Muonic bound systems, virtual particles, and proton radius”, *Phys. Rev. A* **92**, 012123 (2015).
- 171. J. H. Noble and U. D. Jentschura, “Ultrarelativistic Decoupling Transformation for Generalized Dirac Equations,” *Phys. Rev. A* **92**, 012101 (2015).
- 170. U. D. Jentschura and G. Łach, “Non-Contact Friction for Ion-Surface Interactions,” *Eur. Phys. J D* **69**, 119 (2015).
- 169. U. D. Jentschura and K. Pachucki, “Functional Form of the Imaginary Part of the Atomic Polarizability”, *Eur. Phys. J D* **69**, 118 (2015).
- 168. U. D. Jentschura, “Gravitational Correction to Vacuum Polarization”, *Phys. Rev. A* **91**, 022112 (2015).
- 167. U. D. Jentschura, G. Łach, M. De Kieviet and K. Pachucki, “One-Loop Dominance in the Imaginary Part of the Polarizability: Application to Blackbody and Non-Contact Quantum Friction”, *Phys. Rev. Lett.* **114**, 043001 (2015).
- 166. U. D. Jentschura, “Long-range atom-wall interactions and mixing terms: Metastable hydrogen”, *Phys. Rev. A* **91**, 010502(R) (2015).
- 165. J. H. Noble and U. D. Jentschura, “Dirac Equations with Confining Potentials”, *Int. J. Mod. Phys. A* **50**, 1550002 (2015).

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- 164. U. D. Jentschura and I. Nándori, “Attempts at a determination of the fine-structure from first principles: A brief historical overview”, *Eur. Phys. J. H* **39**, 591–613 (2014).
- 163. U. D. Jentschura, “Fine-Structure Constant for Gravitational and Scalar Interactions”, *Phys. Rev. A* **90**, 022112 (2014).
- 162. U. D. Jentschura, “From Dirac theories in curved space-times to a variation of Dirac’s large number hypothesis”, *Ann. Phys. (Berlin)* **526**, A47–A50 (2014).
- 161. U. D. Jentschura and B. J. Wundt, “Neutrino Helicity Reversal and Fundamental Symmetries”, *J. Phys. G* **41**, 075201 (2014).

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- 159. U. D. Jentschura, D. Horváth, S. Nagy, I. Náńdori, Z. Trócsányi and B. Ujvári, “Weighing the Neutrino”, *Int. J. Mod. Phys. E* **23**, 145004 (2014).
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- 154. U. D. Jentschura and B. J. Wundt, “From Generalized Dirac Equations to a Candidate for Dark Energy,” *ISRN High–Energy Physics* **2013**, 374612 (2013).
- 153. U. D. Jentschura, “Gravitationally coupled Dirac equation for antimatter,” *Phys. Rev. A* **87**, 032101 (2013); *Erratum* *ibid.* **87**, 069903 (2013).
- 152. E. Lötstedt and U. D. Jentschura, “Theoretical study of the Compton effect with correlated three-photon emission: From the differential cross section to high-energy triple-photon entanglement,” *Phys. Rev. A* **87**, 033401 (2013).

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- 151. B. J. Wundt, C. T. Munger and U. D. Jentschura, “Quantum dynamics in atomic-fountain experiments for measuring the electric dipole moment of the electron with improved sensitivity,” *Phys. Rev. X* **2**, 041009 (2012).
- 150. U. D. Jentschura and B. J. Wundt, “Pseudo–Hermitian Quantum Dynamics of Tachyonic Spin–1/2 Particles,” *J. Phys. A* **45**, 444017 (2012).
- 149. U. D. Jentschura, “Properties of the Dirac Hamiltonian with Imaginary Mass and Induced Helicity–Dependence by Indefinite Metric,” *J. Mod. Phys.* **3**, 887–894 (2012).
- 148. M. Puchalski and U. D. Jentschura, “Quantum Electrodynamical Corrections to the g Factor of Helium P States,” *Phys. Rev. A* **86**, 022508 (2012).
- 147. U. D. Jentschura, “Tachyonic Field Theory and Neutrino Mass Running,” *Cent. Eur. J. Phys.* **10**, 749–762 (2012).
- 146. G. Łach, U. D. Jentschura and M. DeKieviet, “Einstein–Hopf drag, Doppler shift of thermal radiation and blackbody friction: A unifying perspective on an intriguing physical effect,” *Cent. Eur. J. Phys.* **10**, 763–767 (2012).
- 145. E. Lötstedt and U. D. Jentschura, “Triple Compton effect: A photon splitting into three upon collision with a free electron,” *Phys. Rev. Lett.* **108**, 233201 (2012).

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136. U. D. Jentschura and J. Zinn-Justin, “Multi-Instantons and Exact Results IV: Path Integral Formalism,” *Ann. Phys. (N.Y.)* **326**, 2186-2242 (2011).
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