

## Scientific Publications

(last modified: January 2024)

277. Karl-Heinz Spatschek  
**Astrophysics**  
(Springer, Berlin, 2024) English edition, 694 pages
276. G. Lehmann and K.H. Spatschek  
**Formation and properties of spatially inhomogeneous plasma density gratings**  
Phys. Rev. E **108**, 055204 (2023)
275. G. Lehmann and K.H. Spatschek  
**Reflection and transmission from a finite length electron plasma grating**  
Matter Radiat. Extremes **7**, 054402 (2022)
274. G. Lehmann and K.H. Spatschek  
**Wakefield stimulated terahertz radiation from a plasma grating**  
Plasma Phys. Contr. Fusion **64**, 034001 (2022)
273. Karl-Heinz Spatschek  
**Astrophysik**  
(Springer, Berlin, 2021) 3. Auflage, 726 Seiten
272. G. Lehmann and K.H. Spatschek  
**Plasma volume holograms for focusing and mode conversion of ultraintense laser pulses**  
Phys. Rev. E **100**, 033205 (2019)
271. G. Lehmann and K.H. Spatschek  
**Plasma photonic crystal growth in the trapping regime**  
Phys. Plasmas **26**, 013106 (2019)
270. G. Lehmann and K.H. Spatschek  
**Plasma-based polarizer and waveplate at large laser intensity**  
Phys. Rev. E **97**, 063201 (2018)
269. F. Schluck, G. Lehmann, and K.H. Spatschek  
**Parametric pulse amplification by acoustic quasi-modes in electron-positron plasma**  
Phys. Rev. E **96**, 053204 (2017)
268. G. Lehmann and K.H. Spatschek  
**Laser-driven plasma photonic crystals for high-power lasers**  
Phys. Plasmas **24**, 056701 (2017)
267. G. Lehmann and K.H. Spatschek  
**Transient plasma photonic crystals for high-power lasers**

- Phys. Rev. Lett. **116**, 225002 (2016)
266. F. Schluck, G. Lehmann, C. Müller, and K.H. Spatschek  
**Dynamical transition between weak and strong coupling in Brillouin laser pulse amplification**  
Phys. Plasmas **23**, 083105 (2016)
265. G. Lehmann and K.H. Spatschek  
**Temperature dependence of seed pulse amplitude and density grating in Brillouin amplification**  
Phys. Plasmas **23**, 023107 (2016)
264. F. Schluck, G. Lehmann, and K.H. Spatschek  
**Amplification of a seed pumped by a chirped laser in the strong coupling Brillouin regime**  
Phys. Plasmas **22**, 093104 (2015)
263. G. Lehmann and K.H. Spatschek  
**Control of Brillouin short-pulse seed amplification by chirping the pump pulse**  
Phys. Plasmas **22**, 043105 (2015)
262. G. Lehmann and K.H. Spatschek  
**Non-filamented ultra-intense and ultra-short pulse fronts in three-dimensional Raman seed amplification**  
Phys. Plasmas **21**, 053101 (2014)
261. A. Frank, J. Fuchs, L. Lancia, G. Lehmann, J.-R. Marquès, G. Mourou, C. Riconda, K.H. Spatschek, T. Toncian, L. Vassura, S. Weber, and O. Willi  
**Amplification of ultra-short light pulses by ion collective modes in plasmas**  
Eur. Phys. J. Special Topics **223**, 1153 (2014)
260. A. Wingen, O. Schmitz, T.E. Evans, and K.H. Spatschek  
**Heat flux modeling using ion drift effects in DIII-D H-mode plasmas with resonant magnetic perturbations**  
Phys. Plasmas **21**, 012509 (2014)
259. G. Lehman, K.H. Spatschek, and G. Sewell  
**Pulse shaping during Raman-seed amplification for short laser pulses**  
Phys. Rev. E **87**, 063107 (2013)
258. G. Lehmann and K.H. Spatschek  
**Nonlinear Brillouin amplification of finite-duration seed in the strong coupling regime**  
Phys. Plasmas **20**, 073112 (2013)
257. G. Lehmann, F. Schluck, and K.H. Spatschek  
**Regions for Brillouin seed pulse growth in relativistic laser-plasma interaction**  
Phys. Plasmas **19**, 093120 (2012)
256. K.H. Spatschek

**High Temperature Plasmas:  
Theory and Mathematical Tools for Fusion and Laser Plasmas**  
(Wiley-VCH, 2012)

255. G. Lehmann and K.H. Spatschek  
**Phase-space contraction and attractors for ultrarelativistic electrons**  
Phys. Rev. E **85**, 056412 (2012)
254. M. Rack, A. Wingen, Y. Liang, K.H. Spatschek, D.M. Harting, S. Devaux, and JET-  
EFDA contributors  
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253. M. Rack, K.H. Spatschek, and A. Wingen  
**Diffusion in a collisional standard map**  
Chaos **22**, 023114 (2012)
252. A. Wingen, T.E. Evans, and K.H. Spatschek  
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250. A. Wingen, T.E. Evans, and K.H. Spatschek  
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249. G. Lehmann and K.H. Spatschek  
**Poincaré analysis of wave motion in ultrarelativistic electron-ion plasmas**  
Phys. Rev. E **83**, 036401 (2011)
248. A.B. Schelin and K.H. Spatschek  
**Directed chaotic transport in the tokamak with mixed phase space**  
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247. G. Lehmann and K.H. Spatschek  
**Classification and stability of plasma motion in periodic linearly polarized  
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246. T. E. Evans, A. Wingen, J Watkins, and K.H. Spatschek  
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245. A. Wingen and K.H. Spatschek

- Influence of different DED base mode configurations on the radial electric field at the plasma edge of TEXTOR**  
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244. A. Wingen, T.E. Evans, C.J. Lasnier, and K.H. Spatschek  
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Phys. Rev. Lett. **104**, 175001 (2010)
243. A. Wingen and K.H. Spatschek  
**Sheared plasma rotation in partially stochastic magnetic fields**  
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242. R. Wittkowski, A. Schelin, and K.H. Spatschek  
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241. A. Wingen, T.E. Evans, and K.H. Spatschek  
**High resolution numerical studies of separatrix splitting due to non-axisymmetric perturbation in DIII-D**  
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240. A. Wingen, T.E. Evans, and K.H. Spatschek  
**Footprint structures due to resonant magnetic perturbations in DIII-D**  
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**Relativistic laser pulse focusing and self-compression in stratified plasma-vacuum systems**  
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237. G. Lehmann, E.W. Laedke, and K.H. Spatschek  
**Two-dimensional dynamics of relativistic solitons in cold plasmas**  
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236. Ch. Karle, J. Schweitzer, M. Hochbruck, and K.H. Spatschek  
**A parallel implementation of two-dimensional fluid laser-plasma integrator for stratified plasma-vacuum systems**  
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235. O. Schmitz, T. E. Evans, M. E. Fenstermacher, H. Frerichs, M. W. Jakubowski, M. J. Schaffer, A. Wingen, W. P. West, N. H. Brooks, K. H. Burrell, J. S. deGrassie, Y. Feng, K. H. Finken, P. Gohil, M. Groth, I. Joseph, C. J. Lasnier, M. Lehnen, A. W. Leonard, S. Mordijck, R. A. Moyer, A. Nicolai, T. H. Osborne, D. Reiter, U. Samm, K. H. Spatschek, H. Stoschus, B. Unterberg, E. A. Unterberg, J. G. Watkins, R. Wolf, and the DIII-D and TEXTOR Teams

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234. K.H. Spatschek  
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233. K.H. Spatschek  
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**Pitch angle scattering and effective collision frequency caused by stochastic magnetic fields**  
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Phys. Plasmas **15**, 052305 (2008)
230. G. Lehmann, E.W. Laedke, and K.H. Spatschek  
**Localized wake-field excitation and relativistic wave breaking**  
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228. K.H. Finken, S.S. Abdullaev, M.W. Jakubowski, M.F.M. de Bock, S. Bozhenkov, C. Busch, M. von Hellermann, R. Jaspers, Y. Kikuchi, A. Krämer-Flecken, M. Lehnen, D. Schega, O. Schmitz, K.H. Spatschek, B. Unterberg, A. Wingen, R.C. Wolf, O. Zimmermann, and the TEXTOR team  
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