

BRIEF CV AND LIST OF PUBLICATIONS

BIOGRAPHICAL DATA:

Name: Ulrike Herzog, née Mohr
Place of birth: Berlin
Citizenship: German
Marital status: married, two children

ACADEMIC DEGREES:

1976 Diploma in Physics, Humboldt-University Berlin
1981 PhD in Physics (Dr. rer. nat.), Humboldt-University Berlin
1998 Habilitation in Theoretical Physics (Dr. rer. nat. habil.), Humboldt-University Berlin

EMPLOYMENT:

Feb. 1976 - Dec. 1991: Central Institute for Optics and Spectroscopy of the Academy of Sciences
(of the former German Democratic Republic)
Jan. 1992 - Dec. 1996: Research group "Nonclassical radiation" of the Max-Planck-Society
at the Humboldt-University Berlin
Jan. 1997 - Dec. 2001: Institute of Physics, Humboldt-University Berlin
Sep. 2002 - Jan. 2017: Nano-Optics Group, Institute of Physics, Humboldt-University Berlin

LIST OF PUBLICATIONS :

1. H. Paul, U. Mohr and W. Brunner, Change of photon statistics due to multi-photon absorption, *Opt. Commun.* **17**, 145-148 (1976)
2. U. Mohr, Sättigungsspektroskopie mit verzögerten Impulsen, *Ann. Phys.* **489** (Lpz. **34**), 358-368 (1977)
3. U. Mohr and H. Paul, The influence of multi-photon absorption on photon statistics, *Ann. Phys.* **490** (Lpz. **35**), 461-470 (1978)
4. U. Mohr and H. Paul, Attenuation of a multimode field due to two-photon absorption, *J. Phys. A: Math. Gen.* **12**, L43-L46 (1979)
5. U. Mohr, Saturated Multi-Photon-Absorption of a Nonmonochromatic Quantized Field, *Ann. Phys.* **493** (Lpz. **38**), 461-470 (1981)
6. U. Mohr, Photon statistics in saturated m-photon amplification and attenuation of coherent light, *Opt. Commun.* **41**, 21-26 (1982)
7. U. Herzog, Photon statistics of an m-photon-laser with k-photon losses, *Optica Acta* **30**, 639-652 (1983)
8. U. Herzog, Photon statistics in absorptive multi-photon optical bistability, *Optica Acta* **30**, 1781-1787 (1983)
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9. U. Herzog, Longitudinal mode interaction in semiconductor lasers due to nonlinear gain suppression and four-wave mixing, *Opt. Commun.* **82**, 390-405 (1991)
10. U. Herzog, Quantum noise of lasers with multi-photon absorption and reduced pump noise, *Opt. Commun.* **85**, 275-282 (1991)
11. U. Herzog, Intracavity multi-photon absorption and the quantum-noise spectrum of light, *Ann. Phys.* **503** (Lpz. **48**), 594-600 (1991)
12. U. Herzog, Squeezing in multiphoton absorption with and without a resonator, *Quantum Opt.* **5**, 95-111 (1993)
13. U. Herzog and H. Paul, Quantum nondemolition measurement of microwave photons and phase destruction, *Opt. Commun.* **103**, 519-528 (1993)
14. U. Herzog, H. Paul and Th. Richter, Wigner function for a phase state, *Physica Scripta* **T48**, 61- 65 (1993)

15. U. Herzog and Th. Richter, Phase destruction and quantum non-demolition measurement of photon numbers by atomic beam detection, *J. Mod. Opt.* **41**, 553-561 (1994)
16. U. Herzog, Statistics of photons and deexcited atoms in a micromaser with Poissonian pumping, *Phys. Rev. A* **50**, 783-786 (1994)
17. U. Herzog, Micromaser intensity correlations and atomic coincidence probabilities, *Appl. Phys. B* **60**, S21-S28 (1995)
18. U. Herzog, Micromaser with stationary non-Poissonian pumping, *Phys. Rev. A* **52**, 602-618 (1995)
19. U. Herzog, Atom and field statistics in a micromaser with stationary non-Poissonian pumping, *Acta Phys. Slov.* **45**, 367-374 (1995)
20. T. Kiss, U. Herzog and U. Leonhardt, Compensation of losses in photodetection and in quantum-state measurements, *Phys. Rev. A* **52**, 2433-2435 (1995)
21. T. Kiss, U. Leonhardt and U. Herzog, Reconstructing photon statistics from homodyne experiments, *Acta Phys. Slov.* **45**, 379-382 (1995)
22. U. Herzog, Micromaser with stationary non-poissonian pumping, in "Coherence and Quantum Optics VII", J. Eberly, L. Mandel and E. Wolf eds., Plenum Press New York, 1995
23. U. Herzog, Generating-function approach to the moment problem for the density matrix of a single mode, *Phys. Rev. A* **53**, 2889-2892 (1996)
24. U. Herzog, Loss-error compensation in quantum-state measurements and the solution of the time-reversed damping equation, *Phys. Rev. A* **53**, 1245-1250 (1996)
25. J. Lehner, U. Herzog and H. Paul, Two-photon absorption in unpolarized light, *Acta Phys. Slov.* **46**, 427-432 (1996)
26. U. Herzog and J. A. Bergou, Non-Markovian dynamics of the micromaser due to discrete and continuous non-Poissonian pumping, *Phys. Rev. A* **54**, 5334-5344 (1996)
27. U. Herzog and J. A. Bergou, Non-Markovian micromaser field dynamics due to non-Poissonian pumping, *Acta Phys. Slov.* **46**, 399-404 (1996)
28. U. Herzog and J. A. Bergou, Reflection of the Jaynes-Cummings dynamics in the spectrum of a regularly pumped micromaser, *Phys. Rev. A* **55**, 1385-1390 (1997)
29. U. Herzog and J. A. Bergou, Nonclassical maximum-entropy states, *Phys. Rev. A* **56**, 1658-1661 (1997)
30. U. Herzog and J. A. Bergou, Nonclassical states with maximum entropy, *Acta Phys. Slov.* **47**, 295-298 (1997)
31. T. Kiss, U. Herzog, and U. Leonhardt, Reply to 'Loss-error compensation in quantum-state measurements', *Phys. Rev. A* **57**, 3134-3135 (1998)
32. U. Herzog, Decoherence due to statistically distributed jump-like events, *Acta Phys. Slov.* **49**, 695-700 (1999)
33. U. Herzog, Comment on "Theory of detection in the micromaser", *Phys. Rev. A* **61**, 047801(1-3) (2000)
34. U. Herzog, Influence of statistics on decoherence and quantum Zeno dynamics, *Opt. Commun.* **179**, 381 - 394 (2000)
35. U. Herzog and J. A. Bergou, Quantum-limited linewidth of a good-cavity laser: An analytical theory from near to far above threshold, *Phys. Rev. A* **62**, 063814(1-8) (2000)
36. U. Herzog, Discrimination between Non-orthogonal Two-photon Polarization states, *Fortschr. Phys.* **49**, 981-986 (2001)
37. U. Herzog and J. A. Bergou, Minimum-error discrimination between subsets of linearly dependent quantum states, *Phys. Rev. A* **65**, 050305(R)(1-4) (2002)
38. J. A. Bergou, U. Herzog and M. Hillery, From Unambiguous Quantum State Discrimination to Quantum State Filtering, *Fortschr. Phys.* **51**, 74-80 (2003)
39. U. Herzog and J. A. Bergou, Minimum-error Strategy for Discriminating between Subsets of Nonorthogonal Quantum States, *Fortschr. Phys.* **51**, 140-144 (2003)
40. J. A. Bergou, U. Herzog, and M. Hillery, Quantum Filtering and Discrimination between Sets of Boolean Functions, *Phys. Rev. Lett.* **90**, 257901 (1-4) (2003)

41. Th. Aichele, U. Herzog, M. Scholz and O. Benson, Single-photon generation and simultaneous observation of wave and particle properties, Foundations of Probability and Physics - 3, AIP Conference Proceedings **750**, Vaxjö, Sweden, 7-12 June 2004
42. J. A. Bergou, U. Herzog, and M. Hillery, Discrimination of Quantum States, Invited review article in Lect. Notes Phys. **649**: Quantum State Estimation, Springer, Berlin, 2004, pp. 417 – 465
43. U. Herzog, Minimum-error discrimination between a pure and a mixed two-qubit state, J. Opt. B **6**, 24-30 (2004)
44. U. Herzog and J. A. Bergou, Distinguishing mixed quantum states: Minimum-error discrimination versus optimum unambiguous discrimination, Phys. Rev. A **70**, 022302 (1-6) (2004)
45. J. A. Bergou, U. Herzog, and M. Hillery, Optimal unambiguous filtering of a quantum state: An instance in mixed state discrimination, Phys. Rev. A **71**, 042314 (1-7) (2005)
46. U. Herzog and J. A. Bergou, Optimum unambiguous discrimination between two mixed quantum states, Phys. Rev. A **71**, 050301(R) (1-4) (2005)
47. U. Herzog and J. A. Bergou, Optimum measurement for unambiguously discriminating two mixed states: General considerations and special cases, J. Phys.: Conf. Series **36**, 49-54 (2006)
48. J. A. Bergou, V. Buzek, E. Feldman, U. Herzog, and M. Hillery, Programmable quantum state discriminators with simple programs, Phys. Rev. A **73**, 062334 (1-17) (2006)
49. U. Herzog, Optimum unambiguous discrimination of two mixed quantum states and application to a class of similar states, Phys. Rev. A **75**, 052309 (1-8) (2007)
50. M. Scholz, F. Wolfgramm, U. Herzog, and O. Benson, Narrow-Band Single Photons from a Single-Resonant Optical Parametric Oscillator Far Below Threshold, Appl. Phys. Lett. **91**, 191104(1-3) (2007)
51. U. Herzog, M. Scholz, and O. Benson, Theory of biphoton generation in a single-resonant optical parametric oscillator far below threshold, Phys. Rev. A **77**, 023826 (1-8) (2008)
52. U. Herzog and J. A. Bergou, Optimum unambiguous identification of d unknown pure qudit states, Phys. Rev. A **78**, 032320 (1-5) (2008), Erratum: Phys. Rev. A **78**, 069902(E) (2008)
53. U. Herzog, Discrimination of two mixed quantum states with maximum confidence and minimum probability of inconclusive results, Phys. Rev. A **79**, 032323 (1-7) (2009)
54. U. Herzog and O. Benson, Generalized measurements for optimally discriminating two mixed states and their linear-optical implementation, J. Mod. Opt. **57**, 188-197 (2010)
55. G. A. Steudle, S. Knauer, U. Herzog, E. Stock, V. A. Haisler, D. Bimberg, and O. Benson, Experimental optimal maximum-confidence discrimination and optimal unambiguous discrimination of two mixed single-photon states, Phys. Rev. A **83**, 050304(R) (1-4) (2011)
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57. U. Herzog, Optimal state discrimination with a fixed rate of inconclusive results: Analytical solutions and relation to state discrimination with a fixed error rate, Phys. Rev. A **86**, 032314 (1-16) (2012)
58. U. Herzog, Optimal measurements for the discrimination of quantum states with a fixed rate of inconclusive results, Phys. Rev. A **91**, 042338 (1-13) (2015)
59. O. Dietz, C. Müller, T. Kreißl, U. Herzog, T. Kroh, A. Ahlrichs and O. Benson, A folded-sandwich polarization-entangled two-color photon pair source with large tuning capability for applications in hybrid quantum systems, Appl. Phys. B **122**, 33 (2016)
60. U. Herzog, Optimal quantum state identification with qudit-encoded unknown states, Phys. Rev. A **94**, 062320 (2016)