Publications

1. Theses

1. J. Plefka,
   "**Yang–Mills Coupling and Cosmological Duality of Extended Objects**",
   Master of Science Thesis, Texas A&M University, Dezember 1992.

2. J. Plefka,
   "**Supersymmetric Generalizations of Matrix Models**",
   PhD thesis, Universität Hannover, November 1995; [hep-th/9601041].

3. J. Plefka,
   "**Aspects of Supermembrane and Matrix Theory**",
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2. Books

1. J. M. Henn and J. C. Plefka,
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   Lecture Notes in Physics 883, Springer-Verlag, 2014
   ISBN 978-3-642-54021-9.

2. S. Badger, J. M. Henn, J. C. Plefka and S. Zoia
   "**Scattering Amplitudes in Quantum Field Theory**",
   Lecture Notes, Springer-Verlag, to appear.

3. Review Articles

1. J. Plefka,
   "**Lectures on the Plane-Wave String / Gauge Theory Duality**",
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2. J. Plefka,
   "**Spinning strings and integrable spin chains in the AdS/CFT correspondence**,
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3. G. Travaglini, A. Brandhuber, P. Dorey, T. McLoughlin, S. Abreu, Z. Bern, N. E. J. Bjerrum-Bohr, J. Blümlein, R. Britto and J. J. M. Carrasco, *et al.*
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4. A. Brandhuber, J. Plefka and G. Travaglini,
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4. ARTICLES

1. J.A. Dixon, M.J. Duff und J. Plefka,
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2. J. Plefka,
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3. J. Plefka,
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4. J. Plefka und S. Samuel,
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   Physical Review D55 (1997) 3966-3973.

5. J. Plefka und S. Samuel,
   "**Monte Carlo Studies of Two-Dimensional Systems with a θ Term**",
   Physical Review D56 (1997) 44-54.

6. G. Akemann und J. Plefka,
   "**The Chiral Supereigenvalue Model**",
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7. B. de Wit, K. Peeters und J. Plefka,
   "**Supermembranes with Winding**",
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8. J. Plefka und A. Waldron,
   "**On the Quantum Mechanics of M(atrix) Theory**",
   Nuclear Physics B512 (1998) 460-484.

9. B. de Wit, K. Peeters und J. Plefka,
   "**Superspace Geometry for Supermembrane Backgrounds**",
   Nuclear Physics B532 (1998) 99-123.

10. J. Plefka, M. Serone und A. Waldron,
    "**The Matrix Theory S-Matrix**",
    Physical Review Letters 81 (1998) 2866-2869.

11. B. de Wit, K. Peeters, J. Plefka und A. Sevrin,
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12. J. Plefka, M. Serone und A. Waldron,
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    Journal of High Energy Physics 11 (1998) 010.

13. R. Helling, J. Plefka, M. Serone und A. Waldron,
    "**Three Graviton Scattering in M-Theory**",
    Nuclear Physics B559 (1999) 184-204.

14. W. Krauth, J. Plefka and M. Staudacher,
    "**Yang-Mills Integrals**",
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15. H. Nicolai und J. Plefka,
    "**On the Supersymmetric Effective Action of Matrix Theory**",
    Physics Letters B477 (2000) 309-312.

16. J. Hoppe und J. Plefka,
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19. J. Plefka und M. Staudacher,
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20. G. Arutyunov, J. Plefka und M. Staudacher,
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21. C. Kristjansen, J. Plefka, G. Semenoff und M. Staudacher,
"**A New Double-Scaling Limit of $\mathcal{N} = 4$ Super Yang-Mills Theory and PP-wave Strings** ",
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23. N. Beisert, C. Kristjansen, J. Plefka, G. Semenoff und M. Staudacher,
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    "**Softly broken conformal symmetry with quantum gravitational corrections,**"
    Phys. Lett. B **791** (2019) 62

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    "**Positive helicity Einstein-Yang-Mills amplitudes from the double copy method,**"
    Phys. Rev. D **99** (2019) no.4, 046008

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    Phys. Rev. D **100** (2019) no.8, 086006.

73. J. Plefka, C. Shi and T. Wang,
    "**Double copy of massive scalar QCD**,"
    Phys. Rev. D **101** (2020) no.6, 066004.

74. H. Nicolai and J. Plefka,
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    Phys. Rev. D **101** (2020) no.12, 125013.

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76. F. Loebbert, J. Plefka, C. Shi and T. Wang,
    "**Three-body effective potential in general relativity at second post-Minkowskian order and resulting post-Newtonian contributions,**"
    Phys. Rev. D **103** (2021) no.6, 064010.

77. G. U. Jakobsen, G. Mogull, J. Plefka and J. Steinhoff,
    "**Classical Gravitational Bremsstrahlung from a Worldline Quantum Field Theory,**"
    Phys. Rev. Lett. **126** (2021) no.20, 201103.

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    "**Gravitational Bremsstrahlung and Hidden Supersymmetry of Spinning Bodies,**"
    Phys. Rev. Lett. **128** (2022) no.1, 011101.

79. F. Diaz-Jaramillo, O. Hohm and J. Plefka,
    "**Double field theory as the double copy of Yang-Mills theory,**"
    Phys. Rev. D **105** (2022) no.4, 045012.

80. G. U. Jakobsen, G. Mogull, J. Plefka and J. Steinhoff,
    "**SUSY in the sky with gravitons,**"
    JHEP **01** (2022), 027.

81. C. Shi and J. Plefka,
    "**Classical double copy of worldline quantum field theory,** "
    Phys. Rev. D **105** (2022) no.2, 026007.

82. J. Barrat, P. Liendo, G. Peveri and J. Plefka,
    "**Multipoint correlators on the supersymmetric Wilson line defect CFT,**"
    JHEP **08** (2022), 067.

83. G. U. Jakobsen, G. Mogull, J. Plefka and B. Sauer,
    "**All things retarded: radiation-reaction in worldline quantum field theory,**"
    JHEP **10** (2022), 128.

84. G. U. Jakobsen, G. Mogull, J. Plefka, B. Sauer and Yingxuan Xu,
"**Conservative scattering of spinning black holes at fourth post-Minkowskian order,**"
to appear in PRL.

5. PROCEEDINGS

1. B. de Wit, K. Peeters und J. Plefka,
"**The Supermembrane with Winding**",
Nucl. Phys. Proc. Suppl. 62 (1998) 405-411.

2. J. Plefka und S. Samuel,
"**Monte Carlo Simulations of the CP^3 Model and $U(1)$ Gauge Theory in the Presence of a θ-Term**"
Nucl. Phys. Proc. Suppl. 63 (1998) 715-717,1998.

3. B. de Wit, K. Peeters und J. Plefka,
"**Open and Closed Supermembranes with Winding**",
Nucl. Phys. Proc. Suppl. 68 (1998) 206-215,1998.

4. B. de Wit, K. Peeters und J. Plefka,
"**Supermembranes and Supermatrix Models**",
Proceedings of the International Workshop on Physics Beyond the Standard Model: From Theory to Experiment (Valencia 97), Valencia, Spain, 13-17 Oct 1997; [hep-th/9712082].

5. J. Plefka und A. Waldron,
"**Asymptotic Supergraviton States in Matrix Theory**",
Proceedings of the 31st International Ahrenshoop Symposium on the Theory of Elementary Particles, Buckow, Germany, 2-6 Sep 1997; [hep-th/9801093].

6. J. Plefka, M. Serone, J.F. Morales, C.A. Scrucca und A. Waldron,
"**Spin dependent D-Brane Interactions and Scattering Amplitudes in Matrix Theory**",
Proceedings of the 2nd Conference on Quantum Aspects of Gauge Theories, Supersymmetry and Unification, Corfu, Greece, 21-26 Sep 1998; [hep-th/9812039].

7. J. Plefka, M. Serone und A. Waldron,
"**Matrix Theory and Feynman Diagrams**",
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8. J. Plefka,
"**Vertex Operators for the Supermembrane and Background Field Matrix Theory**",
Int. J. Mod. Phys. A16 (2001) 660-668.

9. A. Dasgupta, J. Plefka und H. Nicolai,
"**An Introduction to the Quantum Supermembrane**",
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10. K. Peeters, J. Plefka und M. Zamaklar,
"**Splitting strings and chains**",
Proceedings of the 37th International Symposium Ahrenshoop, Berlin, August 23-27, 2004, [hep-th/0501165].

6. OTHERS

1. J. Plefka, "**Masse, Spektrum, Symmetrie**", Humboldt Spektrum, 2-2/2009, S. 104–111.

2. J. Plefka, "**Rezension: Das elegante Universum von B. Greene**", Physik Journal, 2001.

3. J. Plefka, "**Rezension: Zurück vor den Urknall von M. Bojowald**", Physik Journal, 2010.

4. W. Buck, H. Dorn, H. Grahn, J. Plefka, "**Nachruf auf Michael Müller-Preußker**", Physik Journal 14 (2015) Nr.12.

Invited Talks and Lectures since 2006

2023

- *"Classical black hole scattering from quantum field theory"*
  Lectures, Saalburg Summer School Foundations and new methods in theoretical physics, September 2023.

- *"Scattering of spinning black-holes at NNNLO"*
  TUM Workshop "Scattering amplitudes across Germany", Raitenhaslach, July 2023;
  Plenary Talk, Amplitudes 2023, CERN, August 2023.

- *"Classical black-hole scattering from a worldline quantum-field theory"*
  Plenary Talk, Quantum Gravity 2023, Nijmegen, July 2023;
  NORDITA Workshop "From amplitudes to gravitational waves", July 2023.

- *"High-Precision Gravitational Wave Physics from a Worldline Quantum Field Theory"*
  Bethe Colloquium, University of Bonn, May 2023;
  Fields and Strings Seminar, LMU Munich, June 2023.

- *"Classical black-hole scattering from a worldline quantum-field theory"*
  Dopplers Meeting, jDPG, TU-Berlin, March 2023.

2022

- *"Classical black-hole scattering from a worldline quantum-field theory"*
  KITP Santa Barbara, April 2022;
  MPI Munich, May 2022;
  SAGEX Closing Event, King's College London, June 2022;
  Colloquium, KIT Karlsruhe, July 2022;
  Colloquium, DESY Hamburg, September 2022.

- *"Scattering amplitudes in gauge theories and gravity"*
  Lectures Cargese Summer School "Rethinking BSM Physics", August 2022.

2021

- *"Classical gravitational scattering from a worldline QFT"*
  16th Marcel Grossmann Meeting, Rom, Parallel Session, Juli 2021;

- *"Classical gravitational scattering from a worldline QFT and SUSY in the sky with gravitons"*
  Virtual Seminar, MPI for Gravitational Physics, März 2021;
  Virtual Seminar, UC Davis, April 2021;

2019

- *"Scattering amplitudes "*
  Lectures, IMPRS Retreat, Alcudia, October 2019.

- *"Classical effective action of dilaton gravity and the double copy"*
  Plenary, Amplitudes 2019, Dublin, Juli 2019;
  KMPB Workshop Berlin, November 2019.

- *"Classical effective action of Dilaton-gravity from the double copy"*
  Theory seminar, University of Edinburgh, Februar 2019

2018

- *"Classical effective action of Dilaton-gravity from the double copy"*
  GRK Colloquium, Hannover, Dezember 2018
  SAGEX Kickoff Meeting, London, September 2018

- *"New results for Graviton-Matter amplitudes"*
  Amplitudes Workshop, GGI Florenz, November 2018

- *"New relations for Einstein-Matter amplitudes"*
  Theory colloquium, CERN, April 2018
  Theory colloquium, Mainz, Juni 2018

- *"Soft theorems and hidden symmetries in gluon and graviton scattering"*
  Theory seminar, University of Bern, April 2018;
  Review talk, Bad Honnef Meeting Beyond the Standard Model, März 2018.

2017

- *"Soft and collinear limits beyond the leading order"*
  Ascona Meeting "Strings and Quantum Gravity", Juli 2017

- *"Scattering amplitudes and hidden symmetries in supersymmetric gauge theory "*
  Theorie Colloquium, RWTH Aachen, Januar 2017

2016

- *"Scattering amplitudes"*
  Lectures, Chinese Academy of Sciences, Bejing, October 2016.

- *"The world as a hologram: News from string theory"*
  Colloquium Bielefeld Graduate School in Theoretical Sciences, Universität Bielefeld, June 2016.

- *"Yangian symmetry in N=4 super Yang-Mills theory"*
  Lectures, Zakopane Physics School 'A Panorama of Holography', June 2016.

- *"Scattering equations in the collinear limit"*
  Plenary Talk, Amplitudes 2016, Stockholm, July 2016.

- *"From hidden symmetries of gluon amplitudes to subleading soft and collinear limits"*
  Plenary Talk, MHV@30 Conference, Fermilab Batavia, March 2016.

- *"The world as a hologram"*
  Physics colloquium, ENS Lyon, March 2016.

- *"Scattering amplitudes and hidden symmetries in supersymmetric gauge theory"*
  Theory colloquium, ENS Lyon, March 2016.

2015

- *"Scattering amplitudes and hidden symmetries in supersymmetric gauge theory"*
  Plenary Lecture, Selected Topics in Theoretical High Energy Physics, Tbilisi, Georgia Septmeber 2015.

- *"The world as a hologram"*
  Public Lecture, IGST 2015, King's College London, July 2015.

- *"Single and double soft gluon and graviton theorems"*
  Plenary Talk, Amplitudes 2015, Zürich, July 2015.

- *"Quantum gravity and the Higgs vacuum"*
  Queen Mary College London, Seminar, Februar 2015;
  Trinity College Dublin, Theoretical physics colloquium, March 2015
  Bonn University, Theoretical physics colloquium, April 2015.

- *"Yangian symmetry of smooth Wilson loops in N=4 SYM"*
  City University London, Seminar, Februar 2015
  Workshop "Humboldt-Oxford Summit Meeting", März 2015.

2014

- *"Constraining new soft gluon and gravtions theorems"*
  LMU Strings and Fields Seminar, November 2014.

- *"Scattering amplitudes and hidden symmetries in supersymmetric gauge theory"*
  Zürich Physik Colloquium, ETH Zürich, März 2014.

- *"Scattering amplitudes and hidden symmetries in maximal supersymmetric Yang-Mills"*
  Haupt, DPG-Tagung Mainz, März 2014.

- *"Yangian symmetry of smooth Wilson loops in N=4 SYM"*
  Workshop "Humboldt-Oxford Summit Meeting", März 2014.

2013

- *"Yangian symmetry of smooth Wilson loops in N=4 SYM"*
  , Workshop "Physics and Mathematics of Scattering Amplitudes", Simons Center for Geometry and Physics, Stony Brook, USA, Dezember 2013;
  , Weizmann Institute of Science, Rehovot, Israel, Oktober 2013;
  , IPMU, Tokyo, Japan, September 2013;
  Plenar "Integrability in Gauge and String Theory", Utrecht, Niederlande, August 2013.

- *"A spectral parameter for scattering amplitudes in $N = 4$ SYM"*
  Seminar, DAMTP University of Cambridge, UK, März 2013
  Colloquium, Trinity College Dublin, Irland, Februar 2013,
  Konferenz, "Amplitudes 2013", Schloss Ringberg, Tegernsee, April 2013.

- *"Towards exaxt results in supersymmetric gauge theory"*,
  Seminar, Institut für Theoretische Physik, Universität Heidelberg, Januar 2013.

2012

- *"Towards exaxt results in supersymmetric gauge theory"*,
  InstitutsColloquium, Institut für Kern- und Teilchenphysik, TU Dresden, Mai 2012
  Seminar, Institut für Physik, Universität Bielefeld, November 2012.

- *"Symmetries and Dualities of Scattering Amplitudes in N=4 SYM"*,
  Lectures Parma International School of Theoretical Physics, September 2012.

- *"Towards exaxt results in AdS/CFT integrability"*,
  Symposium on Mathematical Physics, University of Hamburg, April 2012.

- *"Scattering amplitudes in AdS/CFT "*,
  Lecture Israel Institute for Advanced Studies, März 2013.

- *"Symmetries of scattering amplitudes in N=4 SYM "*,
  Nordic String Meeting 2012, NBI Copenhagen, Februar 2012;
  Joint Israeli String Theory Seminar, Neve Shalom, März 2012.

2011

- *"Amplitudes and symmetries"*
  Workshop, Integrability and Scattering amplitudes, LAPTH, Annecy, November 2011.

- *"All Tree-level Amplitudes in Massless QCD From N=4 sYM"*
  Workshop "The harmony of scattering amplitudes", KITP, Santa Barbara, USA, Juni 2011.

- *"On-shell methods in gauge theory scattering amplitudes "*
  Vorlesungen im Blockkurs, Graduiertenkolleg 1541 "Masse, Spektrum, Symmetrie" , Rathen, März 2011.

- *"Scattering amplitudes in AdS/CFT integrability "*,
  Plenary Talk, "Integrability in Gauge and String Theory" Conference 2011, Perimeter Institute, Kanada, August 2011;
  Workshop "Large-N Gauge Theories", GGI Florenz, April 2011;
  Seminar, Institute for Theoretical Physics, Universiteit Amsterdam, März 2011;
  Conference QFT 2011, IGST Pune, Indien, Februar 2011.

2010

- *"Scattering Amplitudes in N=4 super Yang-Mills theory"*,
  Vorlesungen Copenhagen Elite PhD school "From particles to strings and vice versa", Niels-Bohr-Institut, Oktober 2010.

- *"Exact results in supersymmetric Gauge Theory from AdS/CFT Integrability"*,
  Seminar, Albert Einstein Centre for Fundamental Physics, Universität Bern, April 2010.

- *'Symmetries and integrability of scattering amplitudes in supersymmetric gauge theory"*,
  Colloquium, SFB 676 'Particles, Strings and the Early Universe', Hamburg, Januar 2010.

- *"Yangian symmetry and a new regularization of scattering amplitudes in N=4 SYM"*,
  Seminar, Univerität 'Tor Vergata', Rom; Januar 2010
  Seminar, Centre for Particle Theory, University of Durham, Grossbritanien; Februar 2010.

2009

- *"Von Strings, Eichfeldern und Spinketten"*,
  Colloquium, Bergische Universität Wuppertal, Dezember 2009.

- *"Yangian symmetry and a new regularization of scattering amplitudes in N=4 SYM"*,
  Seminar, Queen Mary University, London; Dezember 2009
  Seminar, Niels Bohr Institute, Copenhagen, November 2009
  Konferenzbeitrag, "A new year of string theory", Weizmann Insitute, Tel Aviv; September 2009.

- *"Yangian symmetry of scattering amplitudes in $\mathcal{N} = 4$ super Yang-Mills"*,
  Plenary Talk, "Integrability 2009 Conference", Potsdam, Juli 2009.

- *"Recent developments in AdS/CFT"*,
  Review talk, Bad Honnef Meeting "Beyond the Standard Model", März 2009
  Lecture, Corfu Summerschool on String Theory and Cosmology, September 2009
  Lecture, UBC Vancouver, August 2009.

- *"Yangian symmetry of scattering amplitudes in $\mathcal{N} = 4$ super Yang-Mills"*,
  Seminar, Niels Bohr Institut, Kopenhagen, März 2000.

- *"Superprotected n-point functions of local operators in $\mathcal{N} = 4$ super Yang-Mills"*,
  Seminar, Imperial College London,Februar 2009
  Seminar, DAMTP Cambridge University, Februar 2009.

2008

- *"The quantum $AdS^5 \times S_5$ superstring in the light-cone gauge"*
  Seminar, ETH Zürich, April 2008.
  Seminar, Universität Heidelberg, Mai 2008.

- *"Are there gravitational contributions to the running gauge coupling?"*
  Seminar, DESY Standort Zeuthen, Januar 2008;
  Theory Colloquium, Trinity College Dublin, Irland, Februar 2008;
  Seminar, LAPTH Annecy, Frankreich, März 2008
  Colloquium, Universität Utrecht, Juni 2008.

2007

- *"The quantum $AdS^5 \times S_5$ superstring in the light-cone gauge"*
  Plenary talk, Conference "Integrability and the Gauge/String Correspondence", Isaac Newton Institute Cambridge, Dezember 2007.

- *"Are there gravitational contributions to the running gauge coupling?"*
  Seminar, Imperial College London, November 2007.

- *"The quantum $AdS^5 \times S_5$ superstring in light-cone gauge"*
  Seminar, University of British Colmubia, Vancouver, August 2007.

- *"The Plane-Wave Matrix Theory"*
  Vorlesungen an der Summerschool "Aspects of Membrane Dynamics", KTH Stockholm, Juni 2007.

- *"Mathematical Aspects of the AdS/CFT S-Matrix"*
  Konferenzbeitrag, "Supersymmetry and Integrability", 79th Meeting of Theoretical Physicists and Mathematicians, IRMA Strasbourg, Mai 2007.

- *"Von Eichfeldern, Strings und Spinketten"*
  Antrittsvorlesung an der Humboldt-Universität zu Berlin, Januar 2007.

2006

- *"The quantum $AdS^5 \times S_5$ superstring in light-cone gauge"*
  Seminar, Nils Bohr Institut, Kopenhagen, November 2006.

- *"Integrability and the AdS/CFT Correspondence"*
  3 Vorlesungen, Summer School on Strings, Gravity and Cosmology, University of British Colmubia, Vancouver, August 2006

- *"The $AdS_5 \times S^5$ superstring in light cone gauge"*
  SFB 647 Seminar, HU Berlin, Juni 2006.

- *"The $AdS_5 \times S^5$ superstring in light cone gauge and its Bethe equations"*
  Arnold Sommerfeld Center Workshop "QCD and String Theory Workshop", Schloss Ringberg, Tegernsee, Juli 2006;
  Parallel Session, Marcel-Grossmann Meeting 11, Berlin, Juli 2006;
  Math-HEP Seminar, University of Durham, UK, März 2006.

- *"Recent developments in the AdS/CFT corresondence"*
  Forschungsseminar Differentialgeometrie und Globale Analysis, Institut für Mathematik, HU Berlin, April 2006;
  Forschungsseminar Geometrische Analysis, Institut für Mathematik, HU Berlin, Januar 2006.