

Dr. Tristan McLoughlin

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Academic Positions

2017-present	Associate Professor in Mathematics	TCD, Ireland
2012-2017	Assistant Professor in Mathematics	TCD, Ireland
2010-2012	Senior Postdoc	M.P.I, Potsdam, Germany
2007-2010	Junior Scientist	M.P.I, Potsdam, Germany
2005-2007	Post-doctoral Scholar	PSU, U.S.A.

Education

1999-2005	PhD, Physics	Caltech, U.S.A.
1995-1999	B.A. Theoretical Physics	TCD, Ireland

Institutional Responsibilities

2022-present	Head of School, Mathematics	TCD, Ireland
2017-2020	Global Director, Mathematics	TCD, Ireland
2013-2016	Course Director for Theoretical Physics	TCD, Ireland
2013-2016	Member of undergraduate and graduate faculty committees	TCD, Ireland
2012-2014	Organiser for Dublin Theoretical Physics Colloquium	TCD, Ireland

Supervision of Post-Graduate Students

2022-2023	Devadharsini Suresh, MSc thesis	TCD, Ireland
2021-2022	Martin Winterlich, MSc thesis	TCD, Ireland
2017-2022	Anne Spiering, PhD	TCD, Ireland
2014-2018	Philipp Hähnel, PhD	TCD, Ireland
2014-2018	Lorenzo Gerotto, PhD	TCD, Ireland
2009-2011	Vaclav Tlapek, Masters thesis	M.P.I, Potsdam, Germany

Organisation of Scientific meetings

2023	Co-organiser, IQFT/ITP Conference,	Maynooth University
2020	Scientific Advisor, Hamilton School on Mathematical Physics	Online
2019	Scientific Advisor, Hamilton School on Mathematical Physics	TCD, Ireland
2018	Organiser, Workshop on higher-point functions and integrable CFT	TCD, Ireland
2017	Organiser, Workshop in QFT and Holography	TCD, Ireland
2017	Organiser, Young Researcher Integrability School and Workshop	TCD, Ireland
2013-2019	Co-organiser, IQF Conference,	Various locations in Ireland
2014	Organiser, Workshop in exactly solvable models	TCD, Ireland

Commissions of Trust

2019	External PhD committee member (opponent)	Uppsala University, Sweden
2019	External PhD committee member	Universidad Autonoma de Madrid, Spain
2018	External PhD committee member	Humboldt University, Berlin, Germany
2016	External PhD committee member	Humboldt University, Berlin, Germany
2015 - present	Member of advisory panel	Journal of Physics A, IOP, UK
2012	External PhD committee member	Uppsala University, Sweden

Reviewer for Journal of High Energy Physics, Journal of Physics A, Physical Review D, Physical Review Letters.

Grant reviewer for Alexander von Humboldt Foundation, FONDECYT.

Memberships of Scientific Networks

2018-2022	Member of SAGEX MSCA ITN
2015-present	Member of GATIS (and GATIS+) research network
2014-2017	Irish representative for the COST MP1210 The String Theory Universe management committee
2013-2015	Member of FEMS India scheme (Ireland-India research exchange programme)

Grants

2016 - 2022	SFI, Career Development Award, Exact Methods in Strongly Coupled Systems, €620,974
2014 - 2015	IRC, Ulysses Travel Grant, New methods in exactly solvable models, €2,500,
2013 - 2017	Marie Curie, Career Integration Grant, Exact methods in string and gauge theories, €100,000,
2010 - 2013	DFG, German Science Foundation grant

Published & Submitted Articles

1. **“Celestial holography on Kerr-Schild backgrounds”**
R. Gonzo, T. McLoughlin and A. Puhm,
JHEP **10** (2022), 073
2. **“The SAGEX review on scattering amplitudes chapter 11:
soft theorems and celestial amplitudes,”**
T. McLoughlin, A. Puhm and A. M. Raclariu,
J. Phys. A **55** (2022) no.44, 443012
3. **“The SAGEX review on scattering amplitudes”**
G. Travaglini, A. Brandhuber, P. Dorey, T. McLoughlin, *et al.*
J. Phys. A **55** (2022) no.44, 443001
4. **“Chaotic spin chains in AdS/CFT”**
T. McLoughlin and A. Spiering,
JHEP **09** (2022), 240
5. **“Quantum chaos in perturbative super-Yang-Mills Theory”**
T. McLoughlin, R. Pereira and A. Spiering,
SciPost Phys. **14** (2023) no.3, 049
6. **“Recent advances in AdS/CFT integrability”**
T. McLoughlin and A. Sfondrini,
J. Phys. A **53** (2020) no.28, 280301
7. **“One-loop non-planar anomalous dimensions in super Yang-
Mills theory”**
T. McLoughlin, R. Pereira and A. Spiering,
JHEP **10** (2020), 124
8. **“Diagonal Form Factors in Landau-Lifshitz Models”**
L. Gerotto and T. McLoughlin,
JHEP **03** (2019), 180
9. **“Conformal higher spin scattering amplitudes from twistor
space”**
T. Adamo, P. Hähnel and T. McLoughlin.
JHEP **1704**, 021 (2017)
10. **“Multi-Soft gluon limits and extended current algebras at
null-infinity”**
T. McLoughlin and D. Nandan.
JHEP **08**, 124 (2017)

11. **“Conformal Higher Spin Theory and Twistor Space Actions”**
P. Hähnel and T. McLoughlin.
J. Phys. A **50**, no.48, 485401 (2017)
12. **“Double-Soft Limits of Gluons and Gravitons”**
T. Klose, T. McLoughlin, D. Nandan, J. Plefka and G. Travaglini.
JHEP **1507**, 135 (2015)
13. **“Comments on World-Sheet Form Factors in AdS/CFT”**
T. Klose and T. McLoughlin.
J. Phys. A: **47** 055401 (2014)
14. **“Worldsheet Form Factors in AdS/CFT”**
T. Klose and T. McLoughlin.
Phys. Rev. D **87**, 026004 (2013)
15. **“Conformal Anomaly for Amplitudes in $\mathcal{N} = 6$ Superconformal Chern-Simons Theory”**
T. Bargheer, N. Beisert, F. Loebbert and T. McLoughlin.
J. Phys. A **45**, 475402 (2012)
16. **“New Relations for Three-Dimensional Supersymmetric Scattering Amplitudes”**
T. Bargheer, S. He and T. McLoughlin.
Phys. Rev. Lett. **108**, 231601 (2012)
17. **“A light-cone approach to three-point functions in $\text{AdS}_5 \times \text{S}^5$ ”**
T. Klose and T. McLoughlin.
JHEP **1204**, 080 (2012)
18. **“Review of AdS/CFT Integrability: An Overview”**
N. Beisert, C. Ahn, L. F. Alday, Z. Bajnok, J. M. Drummond, L. Freyhult, N. Gromov and R. A. Janik *et al.*.
Lett. Math. Phys. **99**, 3 (2012)
19. **“Review of AdS/CFT Integrability, Chapter II.2: Quantum Strings in $\text{AdS}_5 \times \text{S}^5$ ”**
T. McLoughlin.
Lett. Math. Phys. **99**, 127 (2012)
20. **“On All-loop Integrands of Scattering Amplitudes in Planar $\text{N}=4$ SYM”**
S. He and T. McLoughlin.
JHEP **1102**, 116 (2011)
21. **“One-Loop Superconformal and Yangian Symmetries of Scattering Amplitudes in $\text{N}=4$ Super Yang-Mills”**

- N. Beisert, J. Henn, T. McLoughlin and J. Plefka.
JHEP **1004**, 085 (2010)
22. **“Exacting N=4 Superconformal Symmetry”**
T. Bargheer, N. Beisert, W. Galleas, F. Loebbert and T. McLoughlin.
JHEP **0911**, 056 (2009)
23. **“Scattering in Mass-Deformed $N \geq 4$ Chern-Simons Models”**
A. Agarwal, N. Beisert and T. McLoughlin.
JHEP **0906**, 045 (2009)
24. **“Quantum spinning strings in $AdS_4 \times CP^3$: Testing the Bethe Ansatz proposal”**
T. McLoughlin, R. Roiban and A. A. Tseytlin.
JHEP **0811**, 069 (2008)
25. **“Spinning strings at one-loop in $AdS_4 \times P^3$ ”**
T. McLoughlin and R. Roiban.
JHEP **0812**, 101 (2008)
26. **“Interacting finite-size magnons”**
T. Klose and T. McLoughlin.
J. Phys. A A **41**, 285401 (2008)
27. **“The Four-loop dressing phase of N=4 SYM”**
N. Beisert, T. McLoughlin and R. Roiban.
Phys. Rev. D **76**, 046002 (2007)
28. **“World-sheet scattering in $AdS_5 \times S^5$ at two loops”**
T. Klose, T. McLoughlin, J. A. Minahan and K. Zarembo.
JHEP **0708**, 051 (2007)
29. **“Worldsheet scattering in $AdS_5 \times S^5$ ”**
T. Klose, T. McLoughlin, R. Roiban and K. Zarembo.
JHEP **0703**, 094 (2007)
30. **“Integrable twists in AdS/CFT”**
T. McLoughlin and I. Swanson.
JHEP **0608**, 084 (2006)
31. **“Kinky Strings in $AdS_5 \times S^5$ ”**
T. McLoughlin and X. Wu.
JHEP **0608**, 063 (2006)
32. **“Open string integrability and AdS/CFT”**
T. McLoughlin and I. Swanson.
Nucl. Phys. B **723**, 132 (2005)

- 33. **“Gauge/gravity duality for interactions of spherical membranes in 11-dimensional pp-wave”**
H. K. Lee, T. McLoughlin and X. -k. Wu.
Nucl. Phys. B **728**, 1 (2005)
- 34. **“N-impurity superstring spectra near the pp-wave limit”**
T. McLoughlin and I. Swanson.
Nucl. Phys. B **702**, 86 (2004)
- 35. **“Lattice super Yang-Mills: A Virial approach to operator dimensions”**
C. G. Callan, Jr., J. Heckman, T. McLoughlin and I. Swanson.
Nucl. Phys. B **701**, 180 (2004)
- 36. **“Higher impurity AdS/CFT correspondence in the Near-BMN limit”**
C. G. Callan, Jr., T. McLoughlin and I. Swanson.
Nucl. Phys. B **700**, 271 (2004)
- 37. **“Holography beyond the Penrose limit”**
C. G. Callan, Jr., T. McLoughlin and I. Swanson.
Nucl. Phys. B **694**, 115 (2004)
- 38. **“Quantizing string theory in $\text{AdS}_5 \times \text{S}^5$: Beyond the pp wave”**
C. G. Callan, Jr., H. K. Lee, T. McLoughlin, J. H. Schwarz, I. Swanson and X. Wu.
Nucl. Phys. B **673**, 3 (2003)