

# Curriculum Vitae - Andrei Starinets

## Personal Details

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**Name:** Andrei Olegovich Starinets  
**Date and place of birth:** August 29 1968, Dnepropetrovsk, Soviet Union  
**Nationality:** USSR, USA (since 2003), UK (since 2016)  
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## Professional Experience

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**10/2008 - present** University Lecturer (Associate Professor) in Theoretical Physics, Department of Physics, University of Oxford and Tutorial Fellow, St John's College, Oxford, UK  
**02/2008 - 08/2008** Member, Institute for Advanced Study, Princeton, USA  
**09/2007 - 10/2008** STFC Advanced Fellow, School of Physics & Astronomy, University of Southampton, UK  
**09/2004 - 09/2007** Postdoctoral Research Associate, Perimeter Institute for Theoretical Physics, Canada  
**02/2002 - 09/2004** Postdoctoral Research Associate, Institute for Nuclear Theory, University of Washington, USA  
**01/1999 - 05/1999** Visiting Scholar, CERN (European Center for Nuclear Research)  
**1991 - 1994** Student Research Associate, Steklov Mathematical Institute, Russian Academy of Sciences

## Education

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**09/24/2001** PhD in Theoretical Physics, Department of Physics, New York University  
Thesis: "*Etudes on  $1/N$* ", advisors M. Porrati and A. Sokal  
**05/1994** Cand. Sci. in Theoretical Physics, Moscow State University, Moscow, Russian Federation  
Thesis: "*Effective potentials in quantum field theory at finite temperature and density*", advisors V.Ch. Zhukovsky and A.S. Vshivtsev  
**01/1991** Diploma *summa cum laude* in Physics, Moscow State University, Moscow, USSR

## Fellowships, Grants and Awards

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|                       |  |
|-----------------------|--|
| <b>2012 - present</b> | European Research Council "Consolidator" Grant (€1.5M for 5 years) |
| <b>2011</b>           | Maxwell Medal and Prize, UK Institute of Physics                   |
| <b>2007 - 2012</b>    | STFC Advanced Fellowship, UK                                       |
| <b>1994 - 1997</b>    | MacCracken and Meyer Fellowships, New York University              |
| <b>1993</b>           | Research Grant of the Russian Fund for Fundamental Research        |
| <b>1991</b>           | III Prize in Diploma Thesis Competition, Moscow State University   |
| <b>1989 - 1991</b>    | I.V.Kurchatov Fellowship, Moscow State University                  |
| <b>1988 - 1989</b>    | R.V.Khokhlov Fellowship, Moscow State University                   |
| <b>1985</b>           | USSR Ministry of Education Gold Medal for Academic Excellence      |

## Academic Service

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|-----------------------|---|
| <b>07/2016</b>        | Co-organiser, workshop on Non-equilibrium Physics and Holography, St John's college, Oxford   |
| <b>01/2012</b>        | Co-organiser, UK-Japan Winter School in Mathematical Physics, Oxford University   |
| <b>2009-present</b>   | Examiner and member of PhD defense committees in various countries  |
| <b>2009-present</b>   | Member of various committees, St John's College, Oxford   |
| <b>2009 - present</b> | Referee for National Science Foundations and Research Councils of USA, Japan, Netherlands, Israel, Germany, Russian Federation  |
| <b>2003 - present</b> | Referee for <i>Phys.Rev.D</i> , <i>Phys.Rev.Lett.</i> , <i>J. High Energy Phys.</i> , <i>Phys.Lett.B</i> , <i>Nucl. Phys. B</i> , <i>Science</i> , <i>Physics Today</i> , <i>Journal of Physics A</i> , <i>Classical and Quantum Gravity</i> , <i>New Journal of Physics</i> , <i>Annals of Physics</i> , <i>Foundations of Physics</i> |
| <b>05/2006</b>        | Co-organizer of the workshop "Exotic States of hot and dense matter and their dual description", Perimeter Institute for Theoretical Physics, Canada  |
| <b>2006</b>           | Chair, Perimeter Institute for Theoretical Physics Library Committee  |
| <b>2005-2006</b>      | Member, Perimeter Institute for Theoretical Physics PASCOS and Library Committees   |

## Publication Record (INSPIRE database)

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|----------------------------------|--------------------|
| <b>Total number of papers</b>    | 39                 |
| <b>Total number of citations</b> | approximately 8200 |
| <b>Hirsch Index</b>              | 25                 |
| <b>TOPCITE50+ papers</b>         | 20                 |

## Teaching Experience

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- 10/2008 - present** Physics Tutorial Fellow at St John's College, Oxford. Weekly tutorials for the 3rd year undergraduate students in nuclear physics, special and general relativity (6 contact hours per week). Lecturer for "Advanced Quantum Mechanics" undergraduate and "Topics in Gauge-String Duality" MMathPhys course at the Department of Physics. Supervisor of MMathPhys course dissertations (2-3 per year). Advisor for 6 PhD students (3 current). College advisor for graduate and undergraduate physics students.
- 09/2015** Lecturer at Corfu Summer School, Corfu, Greece
- 03/2014** Lecturer at Perimeter Scholars International program, Perimeter Institute, Waterloo, Canada
- 09/2013** Lecturer at the Summer School and Workshop on the Standard Model and Beyond, Corfu, Greece
- 06/2013** Lecturer at Sao Paulo International School "Non-perturbative QCD", SAIFR, Sao Paulo, Brazil
- 04/2013** Lecturer at Erasmus Intensive Program "Non-Perturbative Quantum Field Theory", University of Crete, Greece
- 03/2011** Lecturer at the 27th Nordic Network meeting on "Strings, Fields and Branes", Niels Bohr Institute, Copenhagen, Denmark
- 09/2009** Lecturer at the 5th Aegean Summer School "From Gravity to Thermal Field Theories: the AdS/CFT correspondence"
- 03/2008** Lecturer at École de Physique Les Houches Spring School "Hadronic collisions at the LHC and QCD at high density" on "Methods of gauge/gravity duality in thermal field theory"
- 09/2007 - 01/2008** University of Southampton: lecturer for the graduate course "Introduction to Quantum Field Theory", instructor for problem-solving classes in undergraduate courses "Introduction to Mathematical Methods" and "Physics of Waves", supervisor of 3 undergraduate dissertations, supervisor of the "Seminars" undergraduate course, deputy coordinator for undergraduate courses
- 08/2006** Lecturer at Summer School on Strings, Gravity and Cosmology at the University of British Columbia, Vancouver, Canada, on "Introduction to AdS/CFT Correspondence"
- 1997 - 2000** New York University Teaching Assistant for undergraduate (General Physics, Physics for Scientists and Engineers) and graduate (Dynamics) courses, including competitive Summer TA appointments in 1998, 1999 and 2000 Private tutoring (advanced calculus, undergraduate physics)
- 1992** Teaching Assistant and Assistant Examiner for undergraduate Electrodynamics at the Department of Mathematics and Mechanics, Moscow State University
- 1993 - 1994** Lecturer for prospective Moscow State University physics/math students

## Supervision of postdocs and students

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|                     |   |
|---------------------|---|
| <b>2014-current</b> | Tomas Andrade, postdoctoral researcher  |
| <b>2014-current</b> | Andrej Ficnar, postdoctoral researcher  |
| <b>2014-current</b> | Chris Eling, postdoctoral researcher  |
| <b>2013-current</b> | Ville Keranen, postdoctoral researcher  |
| <b>2015-current</b> | Nikola Gushterov, graduate student (co-supervised with Dr A.O'Bannon)             |
| <b>2013-current</b> | Philipp Kleinert, graduate student  |
| <b>2013-current</b> | Jonas Probst, graduate student  |
| <b>2010-2014</b>    | Sasö Grozdanov, graduate student (currently a postdoc at Leiden U.)               |
| <b>2009-2013</b>    | Nikolaos Kaplis, graduate student (currently a postdoc at Leiden U.)              |
| <b>2008-2012</b>    | Richard Davison, graduate student (currently a postdoc at Harvard U.)             |
| <b>2014</b>         | Robert Pisarczyk, MPhys student project supervision (jointly with Dr. A.O'Bannon) |
| <b>2013</b>         | Stanislav Zavjalov, MPhys student project supervision                             |
| <b>2011</b>         | Jakub Sikorowski, MPhys student project supervision                               |

## Media Reviews

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|-------------|---|
| <b>2011</b> | Z. Merali, "String theory finds a bench mate?", Nature, vol. 478, 2011  |
| <b>2010</b> | C.V. Johnson and P.Steinberg, "What black holes teach about strongly coupled particles?", Physics Today, vol. 63, n.5, 2010 |
| <b>2005</b> | S. Blau, "A string-theory calculation of viscosity could have surprising applications", Physics Today, vol. 58, n.5, 2005   |
| <b>2005</b> | J. Hogan, "Exotic black holes spawn new universal law", New Scientist, March 2005   |

## Conferences, Workshops and other professional activities

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|                |  |
|----------------|--|
| <b>09/2015</b> | Lecturer, Corfu Summer School, Corfu, Greece   |
| <b>08/2015</b> | Invited participant, Institute for Nuclear Theory program "Equilibration Mechanisms in Weakly and Strongly Coupled Quantum Field Theory", Seattle, USA |
| <b>04/2015</b> | Invited participant, Galileo Galilei Institute program, "Holographic Methods for Strongly Coupled Systems Workshop", Florence, Italy                   |
| <b>03/2014</b> | Lecturer at Perimeter Scholars International program, Perimeter Institute, Waterloo, Canada  |
| <b>09/2013</b> | Lecturer, Summer School and Workshop on the Standard Model and Beyond, Corfu, Greece   |
| <b>06/2013</b> | Lecturer, Sao Paulo International School "Non-perturbative QCD", SAIFR, Sao Paulo, Brazil  |

## Conferences, Workshops and other professional activities (contunued)

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- 04/2013** Lecturer, Erasmus Intensive Program "Non-Perturbative Quantum Field Theory", University of Crete, Greece
- 06/2012** Invited participant, "HATCH" holography workshop, INR RAS, Moscow, Russia
- 04/2012** Invited participant, Institute for Nuclear Theory program "Gauge Field Dynamics In and Out of Equilibrium", Seattle, USA
- 01/2012** Invited participant, workshop on "Holographic Fluids", Amsterdam, Netherlands
- 11/2011** Invited talk at Paris meeting on "Holography at Finite Density", Paris, France
- 09/2011** Invited participant, KITP Program "Holographic Duality and Condensed Matter Physics", Santa-Barbara, USA
- 07/2011** Invited talk at "Numerical Relativity beyond Astrophysics" workshop, Edinburgh, UK
- 04/2011** Invited talk at Nuclear and Particle Physics Divisional Conference, University of Glasgow, UK
- 03/2011** Lecturer, 27th Nordic Meeting on Strings, Fields and Branes, Copenhagen, Denmark
- 12/2010** Invited talk at the Annual Theory Meeting, Durham, UK
- 04/2010** Visiting professor, École Normale Supérieure, Paris, France
- 11/2009** Invited talks (plenary and sectional) at XII Mexican conference on Particles and Fields, Mazatlan, Mexico
- 09/2009** Lecturer, 5th Aegean Summer School "From Gravity to Thermal Field Theories: the AdS/CFT correspondence", Milos Island, Greece
- 08/2009** Invited talk at Bogoliubov Centennial Conference, Dubna, Russia
- 08/2009** Invited talk at XIII Lomonosov International Conference, Moscow, Russia
- 07/2009** Invited participant, KITP Program "Quantum Criticality and the AdS/CFT Correspondence", Santa-Barbara, USA
- 07/2009** Invited plenary talk at PASCOS 2009 Conference, Hamburg, Germany
- 04/2009** Invited talk at "New Ideas in Hadronization" workshop, Durham, UK
- 08/2008** Invited talk at "Strings-2008" conference, CERN, Switzerland
- 03/2008** Lecturer, Les Houches Spring School "Hadronic collisions at the LHC and QCD at high density", France
- 02/2008** Invited participant, KITP Program and conference "Nonequilibrium Dynamics in Particle Physics and Cosmology", Santa-Barbara, USA
- 11/2007** Invited talk at "Fundamental Physics in the UK" workshop, London, UK
- 05/2007** Invited talk at Solvay workshop "Gauge theories, strings and geometry", Brussels
- 08/2006** Invited talk at the 38th International Symposium Ahrenschoop on the Theory of Elementary Particles, Akademie Berlin-Schmöckwitz, Germany

## Conferences, Workshops and other professional activities (contunued)

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- 08/2006** Lecturer, Summer School on Strings, Gravity and Cosmology, University of British Columbia, Vancouver, Canada
- 07/2006** Invited talk at the “Hadrons and Strings” workshop, ECT\*, Trento, Italy
- 07/2006** Invited talk at the “QCD and String Theory” Conference, Ringberg Castle, Tegernsee, Germany
- 07/2006** “Strings-2006” International conference, Beijing, China, participant
- 05/2006** Invited talk at the Strong and Electroweak Matter (SEWM-2006) Conference, Brookhaven National Laboratory, Upton, USA
- 03/2006** Invited talk at the Great Lakes String Conference, MCTP, Ann Arbor, USA
- 02/2006** Invited speaker at the Workshop on Gravitational Aspects of Strings and Branes, Santiago de Compostela, Spain
- 08/2005** Invited talk at Workshop on Quark-Gluon Plasma Thermalization, Vienna, Austria
- 08/2005** Invited talk at “Quark Matter-2005” International conference, Budapest, Hungary
- 07/2005** Invited talk at “Strings-2005” conference, Toronto, Canada
- 12/2004** “QCD and String Theory” program, KITP, Santa-Barbara, invited participant
- 09/2004** “COSMO-2004” International conference, Toronto, Canada, participant
- 07/2004** Invited talk at Trento Workshop on Hadrons and Strings, Trento, Italy
- 06/2004** “Strings-2004” International conference, Paris, France, participant
- 04/2004** Invited talk at Workshop on Deconfinement in Nucleus-Nucleus Collisions, Trento, Italy
- 11/2003** Pacific Northwest String Seminar, UBC, Vancouver, Canada, participant
- 07/2003** “Strings-2003” International Conference, Kyoto, Japan, participant
- 02/2003** “QCD and String Theory” Workshop, INT, Seattle, participant
- 07/2002** Strings-2002 International Conference, Cambridge, UK, participant
- 06/2001** TASI-2001 “Strings, branes and Extra Dimensions”, Boulder, USA, invited participant
- 05/1998** Harvard Spring School on String Theory, participant
- 01/1997** XIV Jerusalem Winter School in Theoretical Physics on Dualities and Symmetries, invited participant
- 09/1993** Talk at V Lomonosov conference on elementary particle physics, Moscow
- 02/1992** Talk at the Annual meeting of the High-Energy Division of the Russian Academy of Sciences, ITEP, Moscow

# Publications

1. S. Grozdanov and A. O. Starinets, “Second order transport, quasinormal modes and zero-viscosity limit in Gauss-Bonnet holographic liquid”, *to appear*, 09/2016.
2. S. Grozdanov, N. Kaplis and A. O. Starinets, “From strong to weak coupling in holographic models of thermalization,” **J. High Energy Phys.** **1607**, 151 (2016) [arXiv:1605.02173 [hep-th]].
3. S. Grozdanov and A. O. Starinets, “On the universal identity in second order hydrodynamics,” **J. High Energy Phys.** **03**, 007 (2015) [arXiv:1412.5685 [hep-th]].
4. S. Grozdanov and A. O. Starinets, “Zero-viscosity limit in a holographic Gauss-Bonnet liquid,” **Theor. Math. Phys.** **182**, no. 1, 61 (2015) [**Teor. Mat. Fiz.** **182**, no. 1, 76 (2014)].
5. R. A. Davison and A. O. Starinets, “Holographic zero sound at finite temperature,” **Phys. Rev. D** **85**, 026004 (2012) [arXiv:1109.6343 [hep-th]].
6. E. Berti, V. Cardoso and A. O. Starinets, “Quasinormal modes of black holes and black branes,” **Class. Quant. Grav.** **26**, 163001 (2009) [arXiv:0905.2975 [gr-qc]].
7. A. O. Starinets, “Quasinormal spectrum and the black hole membrane paradigm,” **Phys. Lett. B** **670**, 442 (2009) [arXiv:0806.3797 [hep-th]].
8. A. Karch, D. T. Son and A. O. Starinets, “Holographic Quantum Liquid,” **Phys. Rev. Lett.** **102**, 051602 (2009) [arXiv:0806.3796 [hep-th]].
9. R. Baier, P. Romatschke, D. T. Son, A. O. Starinets and M. A. Stephanov, “Relativistic viscous hydrodynamics, conformal invariance, and holography,” **J. High Energy Phys.** **04**, 100 (2008) [arXiv:0712.2451 [hep-th]].
10. R. C. Myers, A. O. Starinets and R. M. Thomson, “Holographic spectral functions and diffusion constants for fundamental matter,” **J. High Energy Phys.** **11**, 091 (2007) [arXiv:0706.0162 [hep-th]].
11. D. T. Son and A. O. Starinets, “Viscosity, Black Holes, and Quantum Field theory”, **Annual Review of Nuclear and Particle Science**, vol. 57 (2007) [arXiv: 0704.0240 [hep-th]].
12. S. Caron-Huot, P. Kovtun, G. D. Moore, A. Starinets and L. G. Yaffe, “Photon and dilepton production in supersymmetric Yang-Mills plasma,” **J. High Energy Phys.** **12**, 015 (2006) [arXiv:hep-th/0607237].
13. P. K. Kovtun and A. O. Starinets, “Thermal spectral functions of strongly coupled  $N = 4$  supersymmetric Yang-Mills theory,” **Phys. Rev. Lett.** **96**, 131601 (2006) [arXiv:hep-th/0602059].
14. D. T. Son and A. O. Starinets, “Hydrodynamics of R-charged black holes”, **J. High Energy Phys.** **03**, 052 (2006) [hep-th/0601157].
15. A. O. Starinets, “Transport coefficients of strongly coupled gauge theories: Insights from string theory,” **Eur. Phys. J. A** **29**, 77 (2006) [arXiv:nucl-th/0511073].

16. P. Benincasa, A. Buchel and A. O. Starinets, “Sound waves in strongly coupled non-conformal gauge theory plasma,” **Nucl. Phys. B** **733**, 160 (2006) [arXiv:hep-th/0507026].
17. P. K. Kovtun and A. O. Starinets, “Quasinormal modes and holography,” **Phys. Rev. D** **72**, 086009 (2005) [arXiv:hep-th/0506184].
18. A. Parnachev and A. Starinets, “The silence of the little strings,” **J. High Energy Phys.** **10**, 027 (2005) [arXiv:hep-th/0506144].
19. A. Buchel, J. Liu, and A. O. Starinets, “Coupling constant dependence of the shear viscosity in  $\mathcal{N} = 4$  supersymmetric Yang-Mills theory,” **Nucl. Phys. B** **707**, 56 (2005) [arXiv:hep-th/0406264].
20. P. Kovtun, D. T. Son and A. O. Starinets, “Viscosity in strongly interacting quantum field theories from black hole physics,” **Phys. Rev. Lett.** **94**, 111601 (2005) [arXiv:hep-th/0405231].
21. P. Kovtun, D. T. Son and A. O. Starinets, “Holography and hydrodynamics: Diffusion on stretched horizons,” **J. High Energy Phys.** **10**, 064 (2003) [arXiv:hep-th/0309213].
22. A. Nunez and A. O. Starinets, “AdS/CFT correspondence, quasinormal modes, and thermal correlators in  $N = 4$  SYM,” **Phys. Rev. D** **67**, 124013 (2003) [arXiv:hep-th/0302026].
23. G. Policastro, D. T. Son and A. O. Starinets, “From AdS/CFT correspondence to hydrodynamics. II: Sound waves,” **J. High Energy Phys.** **12**, 054 (2002) [arXiv:hep-th/0210220].
24. A. O. Starinets, “Quasinormal modes of near extremal black branes,” **Phys. Rev. D** **66**, 124013 (2002) [arXiv:hep-th/0207133].
25. G. Policastro, D. T. Son and A. O. Starinets, “From AdS/CFT correspondence to hydrodynamics,” **J. High Energy Phys.** **09**, 043 (2002) [arXiv:hep-th/0205052].
26. D. T. Son and A. O. Starinets, “Minkowski-space correlators in AdS/CFT correspondence: Recipe and applications,” **J. High Energy Phys.** **09**, 042 (2002) [arXiv:hep-th/0205051].
27. M. Porrati and A. Starinets, “On the graviton self energy in AdS(4),” **Phys. Lett. B** **532**, 48 (2002) [arXiv:hep-th/0201261].
28. G. Policastro, D.T. Son and A. Starinets, “The shear viscosity of strongly coupled  $\mathcal{N} = 4$  supersymmetric Yang-Mills plasma”, **Phys. Rev. Lett.** **87**, 081601 (2001) [arXiv:hep-th/0104066].
29. G. Policastro and A. Starinets, “On the absorption by near-extremal black branes”, **Nucl. Phys. B** **610**, 117 (2001) [arXiv:hep-th/0104065].
30. A. Sokal and A. Starinets, “Pathologies of the large-  $N$  limit for  $RP^{N-1}, CP^{N-1}, QP^{N-1}$  and mixed isovector/isotensor  $\sigma$ -Models,” **Nucl. Phys. B** **601**, 425 (2001) [arXiv:hep-lat/0011043].
31. M. Porrati and A. Starinets, “On the canonical c-function in 4-d field theories possessing supergravity duals,” **Phys. Lett. B** **498**, 285 (2001) [hep-th/0009227].



32. M. Porrati and A. Starinets, “Holographic duals of 4D field theories,” In D’Hoker, E. (ed.), Phong, D.H. (ed.), Yau, S.T. (ed.): “**Mirror symmetry IV**”, pp. 291-298, [hep-th/0009198].
33. M. Porrati and A. Starinets, “RG fixed points in supergravity duals of 4-d field theory and asymptotically AdS spaces,” **Phys. Lett. B454**, 77 (1999) [hep-th/9903085].
34. A. Starinets, “Singleton field theory and Flato-Fronsdal dipole equation,” **Lett. Math. Phys. 50**, 283 (1999) [math-ph/9809014].
35. V. Pavlov and A. Starinets, “Phase space geometry for constrained Lagrangian systems”, math-ph/9806016; **Theor. Math. Phys. 105**, 1539 (1996).
36. A. O. Starinets, A. S. Vshivtsev and V. C. Zhukovsky, “Color ferromagnetic state in SU(2) gauge theory at finite temperature,” **Phys. Lett. B322**, 403 (1994).
37. A. S. Vshivtsev, V. C. Zhukovsky and A. O. Starinets, “The Standard SU(2) x U(1) model in an external magnetic field at finite temperature and nonzero chemical potential,” **Z. Phys. C61**, 285 (1994).
38. A. S. Vshivtsev, V. C. Zhukovsky, R. A. Potapov and A. O. Starinets, “Quasiexactly solvable problems in quantum mechanics and the anharmonic oscillator,” **Russ. Phys. J. 36**, 161 (1993).
39. A. S. Vshivtsev, V. C. Zhukovsky and A. O. Starinets, “Vacuum polarization due to a non-abelian spherically symmetric chromodynamic field at a finite temperature,” **Russ. Phys. J. 35**, 1049 (1992).
40. A. S. Vshivtsev, V. C. Zhukovsky and A. O. Starinets, “Thermal Green’s functions of massive scalar particles at finite matter density,” **Sov. Phys. J. 34**, 589 (1991).