PONTIFICIA ACADEMIA SCIENTIARUM

THE AWARD

OF THE

PIUS XI GOLD MEDAL

2002

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The aim of the Pontifical Academy of Sciences, which was founded on 28 October 1936 by the Holy Father Pius XI, is to honour pure science, wherever this may be found, to ensure its freedom, and to support the research essential for the progress of applied science.

On 28 October 1961, on the occasion of the XXVth anniversary of the foundation of the Pontifical Academy of Sciences, the Holy Father John XXIII established the Pius XI Gold Medal in honour of the founder of the Academy. The medal should be awarded to a young scientist who has already gained an international reputation.

The Council of the Academy unanimously decided to award the "Pius XI Gold Medal" for the year 2002 to

Prof. Juan Martin Maldacena

in recognition of his great merits as a scholar and the important contribution of his research to scientific progress.


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JUAN M.
MALDACENA
A.D.
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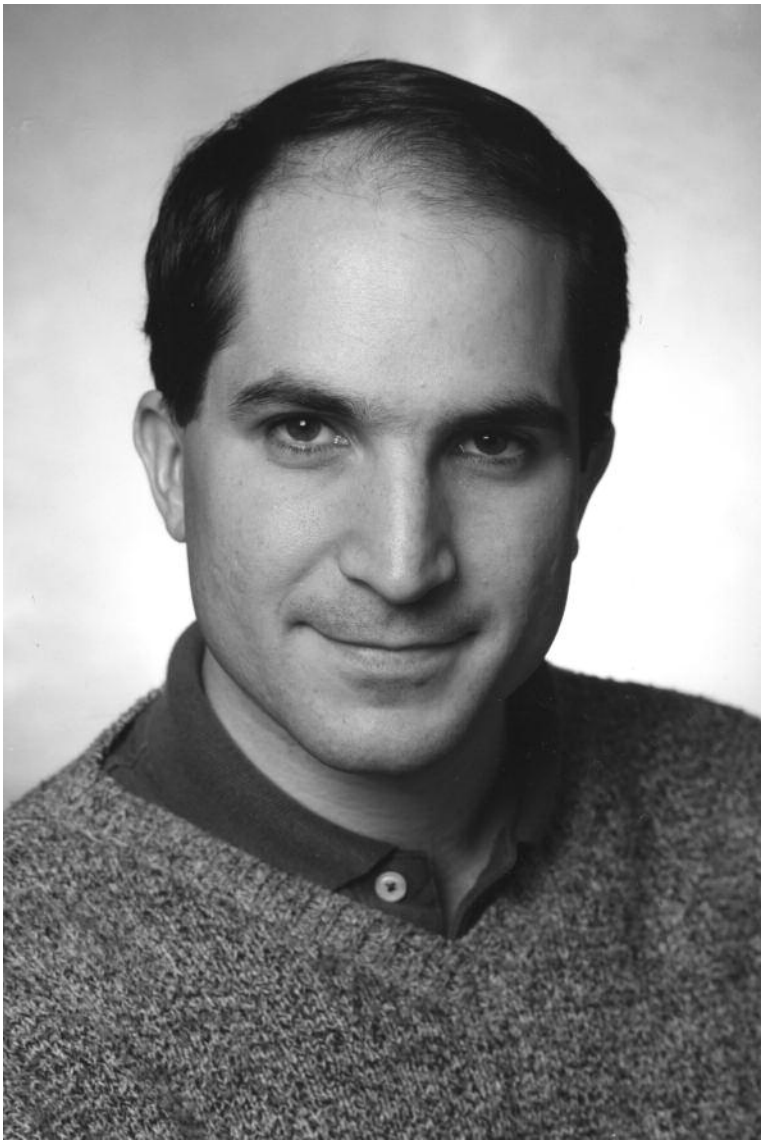
JUAN MARTIN MALDACENA



BIOGRAPHICAL DATA

Full Name

JUAN MARTIN MALDACENA

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Princeton, NJ 08540, (USA)
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Date of Birth: September 10th, 1968

Place of Birth: Buenos Aires, Argentina

Citizenship: Argentine-Italian, US permanent resident

Educational Background:

1985-1988: Studied physics at the University of Buenos Aires, Argentina.

1988-1991: Studied physics at the Instituto Balseiro of the Universidad de Cuyo, Bariloche, Argentina. Graduated in December 1991. Did a "Licenciatura" (Masters) thesis entitled: "Teoría de cuerdas en espacios curvos" (String theory on curved spaces).

1992-1996: Ph.D. Program at Princeton University. Master of Arts, Princeton University, June, 1993. Ph.D., Princeton University, June 4th, 1996, thesis title: "Black Holes in String Theory", Ph.D. advisor: Curtis Callan.

Teaching Activities:

August 1991-July 1992, Teaching Assistant, Instituto Balseiro, Bariloche.

1993-1996, Teaching Assistant, Princeton University.

September-December 1997, Visiting Associate Professor at Harvard University.

January 1998-June 1999, Tomas D. Cabot Associate Professor at Harvard University.

July 1999-July 2001, Professor of Physics at Harvard University.

Prizes and Fellowships:

Sloan Fellowship (1998).

Packard Fellowship in science and engineering (1998).

MacArthur fellowship (1999).

UNESCO Husein prize for young scientists (1999).

Sackler prize in physics (2000).

Xanthopoulos prize in General Relativity (2001).

SUMMARY OF SCIENTIFIC ACTIVITY

Research Activities:

Since July 2001, Professor at the Institute for Advanced Study, Princeton, NJ.

2000-2001, Visiting Professor at the Institute for Advanced Study, Princeton, NJ.

January 1999-May 1999, Institute for Advanced Studies, Princeton, NJ, on leave from Harvard University.

1996-1997, research in high energy theory at Rutgers University as a Research Associate (post-doc).

1993-1996, research in high energy theory under the direction of Curtis C. Callan.

1992-1993, Research Assistant in experimental high energy physics.

January 91-July 92, research under the direction of Gerardo Aldazabal in high energy theory, Bariloche, Argentina.

Invited lectures, summer schools, workshops, etc.:

Colloquium speaker at: Caltech, Fermilab, New York University, Penn. State, Rutgers University, University of New Hampshire, University of Pennsylvania, Stanford, Weizman, Tel Aviv University, University of Buenos Aires, University of Cordoba, University of New Mexico, Los Alamos National Laboratory, McGill University.

Lecturer at the following schools: Cargese summer 1997, 1999; Jerusalem winter 1997, 2000; Karpacz (Poland) winter 1997; Trieste summer 1996, summer 1997, spring 2000, 2001; Tasi 1999; Bariloche 1998; Santiago de Compostella 1999; Les Houches 2001.

Workshops: Amsterdam, 1997, 1998; Aspen 1997, 1998, 1999, 2000; Tel Aviv 1997; Montreal 1999; Trieste 1999; Cambridge UK 1999; Santa Barbara 1998, 2001.

Speaker at the following conferences: APS particle physics meeting 1997; Strings 1996, 1997, 1998, 1999, 2000; Marcel Grossman (Relativity) (Jerusalem) 1997; Utrecht 1998; Quantum Gravity in the southern cone (Argentina) 1998; CERN (String theory) 1996, 1997; Millennium string conference (Los Angeles) 2000; Lepton-Photon 1999; Trieste spring 1997, summer 1999; General Relativity, 2001.

LIST OF MAIN PUBLICATIONS

D. Berenstein, E. Gava, J. Maldacena, K.S. Narain and H. Nastase, "Open strings on plane waves and their Yang-Mills duals", arXiv:hep-th/0203249.

D. Berenstein, J. Maldacena and H. Nastase, "Strings in flat space and pp waves from $\mathcal{N} = 4$ Super Yang Mills", arXiv:hep-th/0202021.

J. Maldacena and H. Ooguri, "Strings in AdS(3) and the SL(2,R) WZW model. III: Correlation functions", arXiv:hep-th/0111180.

J. Maldacena, G. Moore and N. Seiberg, "D-brane charges in five-brane backgrounds", hep-th/0108152.

J. Maldacena, G. Moore and N. Seiberg, "D-brane instantons and K-theory charges", hep-th/0108100.

J.M. Maldacena, "Eternal black holes in Anti-de-Sitter" hep-th/0106112.

J. Maldaena and H. Nastase, "The supergravity dual of a theory with dynamical supersymmetry breaking", hep-th/0105049.

J. Maldacena, G. Moore and N. Seiberg, "Geometrical interpretation of D-branes in gauged WZW models", JHEP **0107**, 046 (2001) [hep-th/0105038].

J. Maldacena and L. Maoz, "De-singularization by rotation", hep-th/0012025.

M. Atiyah, J. Maldacena and C. Vafa, "An M-theory flop as a large n duality", hep-th/0011256.

J.M. Maldacena and C. Nunez, "Towards the large n limit of pure N = 1 super Yang Mills", hep-th/0008001.

J. Maldacena and C. Nunez, "Supergravity description of field theories on curved manifolds and a no go theorem", hep-th/0007018.

I.R. Klebanov and J. Maldacena, "1+1 dimensional NCOS and its U(N) gauge theory dual", hep-th/0006085.

J. Maldacena, H. Ooguri and J. Son, "Strings in AdS(3) and the SL(2,R) WZW model. II: Euclidean black hole", hep-th/0005183.

R. Gopakumar, J. Maldacena, S. Minwalla and A. Strominger, "S-duality and non-commutative gauge theory", hep-th/0005048.

R. Dijkgraaf, J. Maldacena, G. Moore and E. Verlinde, "A black hole farey tail", hep-th/0005003.

S. Hawking, J. Maldacena and A. Strominger, "DeSitter entropy, quantum entanglement and AdS/CFT", hep-th/0002145.

J. Maldacena and H. Ooguri, "Strings in AdS(3) and SL(2,R) WZW model. I", hep-th/0001053.

J.M. Maldacena and J.G. Russo, "Large N limit of non-commutative gauge theories", JHEP **9909**, 025 (1999) hep-th/9908134.

O. Aharony, S.S. Gubser, J. Maldacena, H. Ooguri and Y. Oz, "Large N field theories, string theory and gravity", hep-th/9905111.

J. Maldacena, G. Moore and A. Strominger, "Counting BPS black holes in toroidal type-II string theory", hep-th/9903163.

J. Maldacena, J. Michelson and A. Strominger, "Anti-de Sitter fragmentation", hep-th/9812073.

D. Berenstein, R. Corrado, W. Fischler and J. Maldacena, "The Operator product expansion for Wilson loops and surfaces in the large N limit", hep-th/9809188.

O. Aharony, A. Fayyazuddin and J. Maldacena, "The Large N limit of N=2, N=1 field theories from three-branes in F theory", JHEP **07**, 013 (1998) hep-th/9806159.

J. Maldacena and A. Strominger, "AdS(3) black holes and a stringy exclusion principle", JHEP **12**, 005 (1998) hep-th/9804085.

J. Maldacena, "Wilson loops in large N field theories", Phys. Rev. Lett. **80**, 4859 (1998) hep-th/9803002.

N. Itzhaki, J.M. Maldacena, J. Sonnenschein and S. Yankielowicz, "Supergravity and the large N limit of theories with sixteen supercharges", Phys. Rev. **D58**, 046004 (1998) hep-th/9802042.

J. Maldacena and A. Strominger, "Statistical entropy of de Sitter space", JHEP **02**, 014 (1998) gr-qc/9801096.

J. Maldacena, "The Large N limit of superconformal field theories and supergravity", Adv. Theor. Math. Phys. **2**, 231 (1997) hep-th/9711200.

J. Maldacena, A. Strominger and E. Witten, "Black hole entropy in M theory", JHEP **12**, 002 (1997) hep-th/9711053.

J.M. Maldacena and A. Strominger, "Semiclassical decay of near extremal fivebranes", JHEP **12**, 008 (1997) hep-th/9710014.

J.M. Maldacena, "Branes probing black holes", Nucl. Phys. Proc. Suppl. **68**, 17 (1997) hep-th/9709099.

C.G. Callan and J.M. Maldacena, "Brane death and dynamics from the Born-Infeld action", Nucl. Phys. **B513**, 198 (1997) hep-th/9708147.

S. Ferrara and J. Maldacena, "Branes, central charges and U duality invariant BPS conditions", Class. Quant. Gray. **15**, 749 (1997) hep-th/9706097.

J.M. Maldacena, "Black holes and D-branes", Nucl. Phys. Proc. Suppl. **61A**, 111 (1997) hep-th/9705078.

J. Maldacena, "Probing near extremal black holes with D-branes", Phys. Rev. **D57**, 3736 (1998) hep-th/9705053.

J. Maldacena and A. Strominger, "Universal low-energy dynamics for rotating black holes", Phys. Rev. **D56**, 4975 (1997) hep-th/9702015.

J.M. Maldacena, "N=2 extremal black holes and intersecting branes", Phys. Lett. **B403**,20 (1997) hep-th/9611163.

J. Maldacena, "D-branes and near extremal black holes at low-energies", Phys. Rev. **D55**, 7645 (1997) hep-th/9611125.

D.M. Kaplan, D.A. Lowe, J.M. Maldacena and A. Strominger, "Microscopic entropy of N=2 extremal black holes", Phys. Rev. **D55**, 4898 (1997) hep-th/9609204.

J. Maldacena and A. Strominger, "Black hole grey body factors and d-brane spectroscopy", Phys. Rev. **D55**, 861 (1997) hep-th/9609026.

J.M. Maldacena, "Black holes in string theory", hep-th/9607235.

J.M. Maldacena, "Statistical entropy of near extremal five-branes", Nucl. Phys. **B477**, 168 (1996) hep-th/9605016.

J.M. Maldacena and L. Susskind, "D-branes and fat black holes", Nucl. Phys. **B475**, 679 (1996) hep-th/9604042.

G.T. Horowitz, D.A. Lowe and J.M. Maldacena, "Statistical entropy of nonextremal four-dimensional black holes and U duality", Phys. Rev. Lett. **77**, 430 (1996) hep-th/9603195.

G.T. Horowitz, J.M. Maldacena and A. Strominger, "Nonextremal black hole microstates and U duality", Phys. Lett. B383, 151 (1996) hep-th/9603109.

J.M. Maldacena and A. Strominger, "Statistical entropy of four-dimensional extremal black holes", Phys. Rev. Lett. **77**, 428 (1996) hep-th/9603060.

C.G. Callan and J.M. Maldacena, "D-brane approach to black hole quantum mechanics", Nucl. Phys. **B472**, 591 (1996) hep-th/9602043.

S.S. Gubser, A. Hashimoto, I.R. Klebanov and J.M. Maldacena, "Gravitational lensing by p-branes", Nucl. Phys. **B472**, 231 (1996) hep-th/9601057.

C.G. Callan, J.M. Maldacena and A.W. Peet, "Extremal black holes as fundamental strings", Nucl. Phys. **B472**, 645 (1996) hep-th/9510134.

J.M. Maldacena and A.W. Ludwig, "Majorana fermions, exact mapping between quantum impurity fixed points with four bulk fermion species, and solution of the 'unitarity puzzle'", Nuci. Phys. **B506**, 565 (1995) cond-mat/9502109.

C.G. Callan, I.R. Klebanov, J.M. Maldacena and A. Yegulalp, "Magnetic fields and fractional statistics in boundary conformal field theory", Nucl. Phys. **B443**, 444 (1995) hep-th/9503014.

C.G. Callan, I.R. Klebanov, A.W. Ludwig and J.M. Maldacena, "Exact solution of a boundary conformal field theory", Nucl. Phys. **B422**, 417 (1994) hep-th/9402113.

G. Aldazabal, M. Bonini and J.M. Maldacena, "Factorization and discrete states in C = 1 superLiouville theory", Int. J. Mod. Phys. **A9**, 3969 (1994) hep-th/9209010.

G. Aldazabal and J.M. Maldacena, "On the quantization of the N=2 supersymmetric nonlinear sigma model", Int. J. Mod. Phys. **A8**, 3359 (1993) hep-th/9203036.