Yang Zhang

CONTACT INFORMATION

426 Newman Lab, Laboratory for Elementary Particle Physics — Office: +1 607 255 5160
Cornell University — E-mail: yz98@cornell.edu
Ithaca, NY 14850, USA — http://www.lepp.cornell.edu/~yz98/

RESEARCH INTERESTS

My main research focus is in the scattering amplitudes of Yang-Mills field theory, gravity theory and string theory. Recently I used the monodromy and Kawai-Lewellen-Tye (KLT) relations from string theory to investigate the symmetries of the Yang-Mills amplitudes. I am also studying (1) the properties of the Grassmannian formalism for $N = 4$ Super Yang-Mills amplitude and (2) the constraints on Yang-Mills amplitude from the supergravity theory via the KLT relation.
Previously I have worked on multi-field inflationary models, "thick wall" quantum tunneling in gravity systems (like dS and AdS spacetime), and cosmic superstring networks.

EDUCATION

Cornell University, Ithaca, New York

Doctor of Philosophy — **2005 – 2011**

Expected graduation date: May 2011
Advisor: Henry Tye

Master of Science — **Feb 2009**

University of Science and Technology of China, Hefei, China

Bachelor of Science in Physics — **2001 – 2005**

Honors Topic: "Physics on extra dimensions"
Advisor: Xiaojun Wang, Jianxin Lu

HONORS AND AWARDS

Walter Schonlenk Fellowship, Cornell University, 2005 – 2006

First class award, University of science and technology of China, 2004

SELECTED PUBLICATIONS

Henry Tye, Yang Zhang, "Remark on the Identities of the Gluon Tree Amplitudes", arXiv:1007.0597, *Phys. Rev. D* ***80***: 087702 (2010).

Henry Tye, Yang Zhang, "Dual Identities inside the Gluon and the Graviton Scattering Amplitudes", arXiv:1003.1732, *JHEP* 1006:071 (2010).

Henry Tye, Jiajun Xu, Yang Zhang, "Multi-field Inflation with a Random Potential", arXiv:0812.1944, *JCAP* 0904:018 (2009).

Henry Tye, Daniel Wohns, Yang Zhang, "Coleman-de Luccia Tunneling and the Gibbons-Hawking Temperature", arXiv:0811.3753, *Int. J. Mod. Phys. A* ***25***, 1019-1060, (2010).

SELECTED TALKS

"Introduction to modern methods on scattering amplitudes (II)", String theory seminar, Cornell, (Sep 2010)

"Introduction to modern methods on scattering amplitudes" , LEPP theory seminar, Cornell, (Sep 2010)

"Black hole entropy in string theory: Microscopic and Macroscopic", Student presentation in string theory course, Cornell, (April 2010)

"Identities inside the Gluon and the Graviton Scattering Amplitudes (short version)", Spring School on Superstring Theory and Related Topics, ICTP, (March 2010)

"Identities inside the Gluon and the Graviton Scattering Amplitudes (long version)", LEPP theory seminar, Cornell, (Feb 2010)

"Quantum criticality and the holographic methods in condensed matter physics", ICTS theory seminar, University of Science and Technology of China, (July 2009)

"An introduction to heterotic strings", Student presentation in string theory course, Cornell, (May

2008)

"Gravitational backreaction on kinky cosmic strings", String theory seminar, Cornell, (Feb 2008)

"An introduction to Seiberg-Witten theory and elliptic curves", Student presentation in Supersymmetry course, Cornell, (May 2007)

"Cohomology of compact Lie groups", Student presentation in Differential Topology II course, Cornell, (May 2006)

"Physics on extra dimensions", Undergraduate thesis defence, University of Science and Technology of China, (June 2005)

Workshops, Schools, Conferences

Theoretical Advanced Studies Institute 2010, University of Colorado at Boulder, (June 1-27, 2010)

Spring School on Superstring Theory and Related Topics, Abdus Salam International Center for Theoretical Physics, (March 22-28, 2010)

New perspectives of string theory, Galileo Galilei Institute in Florence, (Jun 6-19, 2009)

The Third New England String Meeting, Brown University, (October 24, 2008)

Branes, Strings and Inflation, Princeton University, (Oct 3-8, 2008)

Selected Teaching Experience

Cornell University, Ithaca, New York

Graduate courses:

Course Grader, Physics 652, Quantum field theory II, (Spring 2008)
Teaching Assistant, Physics 6562: Statisitical mechanics, (Spring 2009)
Teaching Assistant, Physics 572: Quantum mechanics, (Fall 2006)

Undergraduate courses:

Teaching Assistant, Physics 101, General Physics I, (Fall 2010)
Teaching Assistant, Physics 112, Mechanics, (Fall 2008)
Teaching Assistant, Physics 102, General Physics II, (Spring 2007)

Hobbies

Running, Soccer, Literature.