The Ken Wilson Lattice Award

⌘ A prestigious field deserves a prestigious award

⌘ Ken Wilson endorsed the Ken Wilson Lattice Award in 2011

⌘ An annual award in recognition of a paper that made an important contribution to Lattice Field Theory in the three-year period before each Lattice Conference

⌘ An invitation for voluntary participation in the award panel was sent to the Local Organizing Committee (LOC) and the International Advisory Committee (IAC)

⌘ The prize is a certificate and $500 USD to be shared among the authors

⌘ The plan is to eventually have the Ken Wilson Lattice Award administered through APS and still be presented at the Lattice Conference

https://kwla.llnl.gov/

To: Attendees and prizewinners at the 2011 Lattice International Conference.

From: Ken Wilson.

I am honored and delighted that you have established the Ken Wilson Lattice Award.

I remain concerned that Quantum Chromodynamics may differ in fundamental ways from what is now widely accepted, especially if the changes needed show up only in small but now measurable corrections, just as the famous precession of the perihelion of Mercury was and remains a small correction to Newton's theory of planetary motions.

I consider that numerical methods have a comparable role with analytic thinking, experiment, and observation in physics, a role that amazing continuing advances in computing power, and similar advances in algorithm development, have made possible. Over the next century, I am confident that there will be surprising breakthroughs achieved by numerical studies, perhaps even on questions as basic as: Why does the universe exist? I urge that the broadest possible range of research strategies are pursued, including even possible but now unexpected numerical methods for coping with questions about the early universe.

Finally, numerical studies on the world's most powerful computers are linked in with broader development in the human society to come, with the worldwide Internet and associated computing power making possible a very different future world than most people of today expect. Attendees at your meeting, especially students at an early stage of their career, can expect major future surprises in society itself, surprises made possible by ongoing developments in today's rapidly changing society. Of especial note is that more and more individuals are entering multiple careers over their full lifetime, not just the one they set out in as graduate students.

Many thanks to
Professor Robert Perry (OSU)
for his help with initiating the
Ken Wilson Lattice Award

Award Panel

Mike Buchoff	(Lawrence Livermore National Laboratory)
Luigi Del Debbio	(University of Edinburgh, UK)
George Fleming	(Yale University, USA)
Philippe de Forcrand	(ETHZ, Switzerland)
Rajiv Gavai	(Tata Institute of Fundamental Research, India)
Shoji Hashimoto	(KEK, Japan)
Jim Hetrick	(University of the Pacific)
Karl Jansen	(DESY, Germany)
Frithjof Karsch	(Brookhaven National Laboratory, USA)
Joe Kiskis	(University of California, Davis)
Derek Leinweber	(University of Adelaide, Australia)
John Negele	(Massachusetts Institute of Technology, USA)
Kostas Orginos	(College of William and Mary, USA)
Giancarlo Rossi	(University of Roma Tor Vergata and INFN, Italy)
Sergey Syritsyn	(Lawrence Berkeley National Laboratory)
Pavlos Vranas	(Lawrence Livermore National Laboratory)
Joe Wasem	(Lawrence Livermore National Laboratory)
Andre Walker-Loud	(Lawrence Berkeley National Laboratory)

The First Ken Wilson Lattice Award

"…This is really a new application of lattice methods, applied in a timely fashion, and making an impact on an important (current) discrepancy for the muon magnetic moment…."

Two-flavor correction to lepton magnetic moments at leading-order in the electromagnetic coupling

Xu Feng, Marcus Petschlies, Karl Jansen, Dru B. Renner

[hep-lat] http://arxiv.org/abs/1103.4818v1

The 2011 KWLA panel is proud to award

The 2011 Ken Wilson Lattice Award

To: Xu Feng, Marcus Petschlies, Karl Jansen, and Dru B. Renner

In recognition of their paper titled

Two-flavor QCD Correction to Lepton Magnetic Moments at Leading-Order in the Electromagnetic Coupling

The 2011 KWLA Panel Members

Mike Buchoff
Luigi Del Debbio
George Fleming
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Rajiv Gavai
Shoji Hashimoto
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Design by Mayia A. Vranas

Two-flavor correction to lepton magnetic moments at leading-order in the electromagnetic coupling

X. Feng, M. Petschlies, K. Jansen, D. Renner

[hep-lat] http://arxiv.org/abs/1103.4818v1

Abstract:
We present a reliable nonperturbative calculation of the QCD correction, at leading-order in the electromagnetic coupling, to the anomalous magnetic moment of the electron, muon and tau leptons using two-flavor lattice QCD. We use multiple lattice spacings, multiple volumes and a broad range of quark masses to control the continuum, infinite-volume and chiral limits. We examine the impact of the commonly ignored disconnected diagrams and introduce a modification to the previously used method that results in a well-controlled lattice calculation. We obtain 1.513(43) 10^(-12), 5.72(16) 10^(-8) and 2.650(54) 10^(-6) for the leading-order QCD correction to the anomalous magnetic moment of the electron, muon and tau respectively, each accurate to better than 3%.