



<http://kicp-workshops.uchicago.edu/Relativity2012/>

## MEETING PROGRAM

The 22nd Midwest Relativity Meeting will be held Friday and Saturday, September 28 and 29, 2012 at the University of Chicago. The format of the meeting will follow previous regional meetings, where all participants may present a talk of approximately 10-15 minutes, depending on the total number of talks. We intend for the meeting to cover a broad range of topics in gravitation physics, including classical and quantum gravity, numerical relativity, relativistic astrophysics, cosmology, gravitational waves, and experimental gravity. As this is a regional meeting, many of the participants will be from the greater United States Midwest and Canada, but researchers and students from other geographic areas are also welcome.

Students are strongly encouraged to give presentations. The Blue Apple Award, sponsored by the APS Topical Group in Gravitation, will be awarded for the best student presentation.

We gratefully acknowledge the generous support provided by the Kavli Institute for Cosmological Physics (KICP) at the University of Chicago.

## **Organizing Committee**

**Daniel Holz**  
University of Chicago

**Robert Wald**  
University of Chicago

**MEETING PROGRAM**

September 28-29, 2012 @ Kersten Physics Teaching Center (KPTC), Room 106

**Friday - September 28, 2012**

8:15 AM - 8:55 AM	<i>COFFEE &amp; PASTRIES</i>
8:55 AM - 9:00 AM	<i>WELCOME</i> <i>Daniel Holz &amp; Robert Wald</i>
	<b>MORNING SESSION</b>
9:00 AM - 9:15 AM	<b>Daniel Holz</b> , University of Chicago <i>Gravitational-waves and gamma-ray bursts</i>
9:15 AM - 9:30 AM	<b>Hsin-Yu Chen*</b> , University of Chicago <i>GRB Beaming and Gravitational-Wave Observations</i>
9:30 AM - 9:45 AM	<b>Sydney J Chamberlin*</b> , University of Wisconsin-Milwaukee <i>Searches for a stochastic gravitational wave background with pulsar timing arrays: a data analysis pipeline</i>
9:45 AM - 10:00 AM	<b>Justin Ellis*</b> , University of Wisconsin Milwaukee <i>Gravitational Wave Searches in Pulsar Timing Data</i>
10:00 AM - 10:15 AM	<b>Shivaraj Kandhasamy*</b> , University of Minnesota <i>Search for long gravitational-wave bursts and high-energy neutrino coincidences</i>
10:15 AM - 10:30 AM	<b>Lee McCuller*</b> , University of Chicago <i>Interferometer Instrumentation on the Fermilab Holometer</i>
10:30 AM - 11:00 AM	<i>COFFEE BREAK &amp; DISCUSSION</i>
11:00 AM - 11:15 AM	<b>Madeline Wade*</b> , UW-Milwaukee <i>Sub-Solar Mass Black Hole Search in S5 Initial LIGO Data</i>
11:15 AM - 11:30 AM	<b>Evan L Ochsner</b> , University of Wisconsin-Milwaukee <i>Gravitational waves from BH-NS binaries: Effective Fisher matrices and parameter estimation using higher-harmonics</i>
11:30 AM - 11:45 AM	<b>Carl L Rodriguez*</b> , Northwestern University <i>Inadequacies of the Fisher Information Matrix in gravitational-wave parameter estimation</i>
11:45 AM - 12:00 PM	<b>Richard O'Shaughnessy</b> , University of Wisconsin-Milwaukee <i>Precession during merger: Strong polarization changes are observationally accessible features of strong-field gravity during binary black hole merger</i>
12:00 PM - 12:15 PM	<b>Leslie E Wade*</b> , University of Wisconsin - Milwaukee <i>Studying the Effects of Tidal Corrections on Parameter Estimation</i>
12:15 PM - 1:45 PM	<i>LUNCH</i>

## AFTERNOON SESSION

- 1:45 PM - 2:00 PM **John Friedman**, University of Wisconsin-Milwaukee  
*Update on the EMRI problem for a massive particle in a Kerr spacetime*
- 2:00 PM - 2:15 PM **Joshua S. Schiffrin\***, University of Chicago  
*Dynamical and Thermodynamic Stability of Perfect Fluid Stars*
- 2:15 PM - 2:30 PM **Kartik Prabhu\***, University of Chicago  
*Gauge Conditions and Black hole Stability*
- 2:30 PM - 2:45 PM **Alexander L Urban\***, University of Wisconsin - Milwaukee  
*Causal structure of black hole interiors in spherical symmetry*
- 2:45 PM - 3:00 PM **Eleni-Alexandra Kontou\***, Tufts University  
*Averaged null energy condition in curved space*
- 3:00 PM - 3:15 PM **Stephen R Green**, University of Guelph  
*Exact example of backreaction of small scale inhomogeneities in cosmology*
- 3:15 PM - 3:45 PM *COFFEE BREAK & DISCUSSION*
- 3:45 PM - 4:00 PM **Andrew Tolley**, Case Western Reserve University  
*Progress in Massive Gravity*
- 4:00 PM - 4:15 PM **Matteo Fasiello**, Case Western Reserve University  
*The interplay of Stability Requirements and Observations in Massive Gravity*
- 4:15 PM - 4:30 PM **Lavinia Heisenberg\***, Case Western Reserve University  
*A Proxy for Massive Gravity*
- 4:30 PM - 4:45 PM **Caixia Gao\***, University of Mississippi  
*On charged black holes in nonlinear ghost-free massive gravity*
- 4:45 PM - 5:00 PM **Pierre Gratia\***, University of Chicago  
*Cosmological constant from Massive Gravity*
- 5:00 PM - 5:15 PM **Andrew A Matas\***, Case Western Reserve University  
*Galileon radiation from binary pulsars*
- 5:15 PM - 5:30 PM **Newshaw Bahreyni\***, University at Albany, SUNY  
*A Potential Mechanism for Emergent Observer-Based Space-Time*

---

**Saturday - September 29, 2012**

8:15 AM - 9:00 AM	<i>COFFEE &amp; PASTRIES</i>
	<b>MORNING SESSION</b>
9:00 AM - 9:15 AM	<b>Carlos O Lousto</b> , Rochester Institute of Technology <i>Exploring the outer limits of Numerical Relativity</i>
9:15 AM - 9:30 AM	<b>Vasileios Paschalidis</b> , University of Illinois at Urbana-Champaign <i>Importance of cooling in triggering the collapse of hypermassive neutron stars</i>
9:30 AM - 9:45 PM	<b>Zachariah B. Etienne</b> , University of Illinois <i>General relativistic simulations of black hole-neutron star mergers: Effects of tilted magnetic fields</i>
9:45 AM - 10:00 AM	<b>Roman Gold</b> , University of Illinois at Urbana-Champaign <i>Binary black hole mergers in magnetized disks: simulations in full general relativity</i>
10:00 AM - 10:15 AM	<b>Daive Gerosa*</b> , University of Mississippi <i>Spin Alignment Effects in Stellar Mass Black Hole Binaries</i>
10:15 AM - 10:30 AM	<b>David Garfinkle</b> , Oakland University <i>Collapse of charged thick domain walls</i>
10:30 AM - 11:00 AM	<i>COFFEE BREAK &amp; DISCUSSION</i>
11:00 AM - 11:15 AM	<b>Ema Dimastrogiovanni</b> , UMNN <i>An estimator for statistical anisotropy from the CMB bispectrum</i>
11:15 AM - 11:30 AM	<b>Cristiano Germani</b> , Ludwig-Maximilians-University <i>High friction inflation</i>
11:30 AM - 11:45 AM	<b>Hui-Yiing Chang*</b> , Vanderbilt University <i>Inflection Point Quintessence Cosmologies</i>
11:45 AM - 12:00 PM	<b>Nikodem Poplawski</b> , Indiana University <i>Nonsingular big-bounce cosmology from spin and torsion</i>
12:00 PM - 12:15 PM	<b>Shouhong Wang</b> , Indiana University <i>Gravitational Field Equations and Unified Theory of Dark Matter and Dark Energy</i>
12:15 PM - 12:30 PM	<b>Luke A Keltner*</b> , Case Western Reserve University <i>Classicalization as Possible UV Completion</i>
12:30 PM - 2:00 PM	<i>LUNCH</i>
	<b>AFTERNOON SESSION</b>
2:00 PM - 2:15 PM	<b>Amol Upadhye</b> , Argonne National Laboratory <i>Dark energy fifth forces in torsion pendulum experiments</i>

- 2:15 PM - 2:30 PM      **George E. A. Matsas**, Instituto de Fisica Teorica (Sao Paulo - Brazil)  
*Particle creation due to tachyonic instability in relativistic stars*
- 2:30 PM - 2:45 PM      **Ariel Edery**, Bishop's University  
*Quantum corrections to the gravitationally coupled magnetic monopole:  
residual conformal symmetry and trace anomaly*
- 2:45 PM - 3:00 PM      **William Donnelly**, University of Waterloo  
*Entanglement entropy of gauge fields*
- 3:00 PM - 3:15 PM      **Ko Sanders**, University of Chicago  
*Topological effects in linear gauge theories*
- 3:15 PM - 3:30 PM      **James Alsup**, University of Michigan-Flint  
*Gravity dual of FFLO states*
- 3:30 PM - 3:45 PM      **Robert Wald**, University of Chicago  
*Negative Canonical Energy and Exponential Growth Instabilities*