

20th Midwest Relativity Meeting

5-6 November 2010

Department of Physics, University of Guelph
Guelph, Ontario, Canada

Programme of events
Peter Clark Hall, University Centre

The 20th annual Midwest Relativity Meeting is sponsored by the Provost and Vice President (Academic), Vice President (Research), Dean of Arts, Dean of Biological Science, Dean of Physical and Engineering Science, and the Department of Physics of the University of Guelph.

A MacBook Pro computer running Mac OS X v10.6 will be provided. The computer is equipped with Microsoft PowerPoint 2008 for Mac, Keynote 2009, and Adobe Acrobat 9 Pro. Speakers are strongly encouraged to prepare PDF versions of their talks, and to upload them onto the computer prior to delivering their talk (during a coffee break or lunch). Speakers who insist on using their own computer do so at their own risk; setup time will be subtracted from the total time allotted to the talk.

Each speaking slot is 15 minutes including questions.

* indicates a graduate student who is eligible for the Blue Apple Award.

DAY 1 (5 November 2010, Friday)

8:15-8:45 **Continental Breakfast and Registration**
8:45-9:00 **Opening Remarks** (Eric Poisson, University of Guelph)

Session 1 (9:00-10:45) Session Chair: John Friedman

9:00-9:15 David Garfinkle (Oakland University)
The speed of gravitational waves in Chern-Simons gravity
9:15-9:30 Carlos Lousto (Rochester Institute of Technology)
Extreme-Mass-Ratio-Black-Hole-Binary Evolutions with Numerical Relativity
9:30-9:45 Larne Pekowsky* (Syracuse University)
Status of the NINJA-2 project
9:45-10:00 Sam Gralla* (University of Chicago)
Motion of Small Bodies in Classical Field Theory
10:00-10:15 Geoffrey Lovelace (Cornell University)
Simulating merging binary black holes with nearly extremal spins
10:15-10:30 Kayll Lake (Queen's University)
Gradient fields of curvature
10:30-10:45 Luis Lehner (University of Guelph and Perimeter Institute)
Finally the final fate of the black string

Coffee Break (10:45-11:05)

Session 2 (11:05-12:50) Session Chair: Valerio Faraoni

- 11:05-11:20 Sean Stotyn* (University of Waterloo)
The most general black ring in 5d SUGRA
- 11:20-11:35 Razieh Pourhasan* (University of Waterloo)
Einstein-Lifshitz-Maxwell solutions in $(n+1)$ -dimensions and arbitrary critical exponent
- 11:35-11:50 Miok Park* (University of Waterloo)
Holographic Renormalization for an asymptotic flat spacetimes
- 11:50-12:05 Eric Brown* (University of Waterloo)
Instability of the Noncommutative Geometry Inspired Black Hole
- 12:05-12:20 Alexandre Yale* (Perimeter Institute)
Structure of Lanczos-Lovelock Lagrangians in Critical Dimensions
- 12:20-12:35 Paul McGrath* (University of Waterloo)
A Paradox in Special Relativity Resolved using Rigid Quasilocal Frames
- 12:35-12:50 Majd Abdelqader* (Queen's University)
Finding and Categorizing Singularities In the Curzon-Chazy Metric by Analyzing the Weyl Invariant

Lunch (12:50-1:50)

Session 3 (1:50-3:35) Session Chair: Harald Pfeiffer

- 1:50-2:05 William Ballik* (Queen's University)
The Four-Volume of Black Holes
- 2:05-2:20 Leslie Wade* (University of Wisconsin-Milwaukee)
Including Electromagnetic Radiation in Blandford's Argument
- 2:20-2:35 Yuk Tung Liu (University of Illinois)
A New AMR Code for Relativistic Magnetohydrodynamics in Dynamical Spacetimes: Formulation and Numerical Method
- 2:35-2:50 Zachariah B. Etienne (University of Illinois)
A New AMR Code for Relativistic Magnetohydrodynamics in Dynamical Spacetimes: Code Validation
- 2:50-3:05 Vasileios Paschalidis (University of Illinois)
Head-on collisions of binary white dwarf - neutron stars: Simulations in full General Relativity
- 3:05-3:20 Brian D. Farris* (University of Illinois)
Simulations of Binary Black Hole Mergers in Gaseous Environments
- 3:20-3:35 Oleg Korobkin* (Louisiana State University)
Exploring Non-axisymmetric Instabilities in Thick Self-Gravitating Tori Around Black Holes in Dynamical General Relativistic Framework

Coffee Break (3:35-3:55)

Session 4 (3:55-5:55) Session Chair: David Garfinkle

- 3:55-4:10 Michael Barriault* (University of Guelph)
Dynamical Constraint Enforcement for Plasma Environments
- 4:10-4:25 Benjamin D. Lackey* (University of Wisconsin-Milwaukee)
Detectability of equation of state parameters from black hole-neutron star inspirals
- 4:25-4:40 Joshua Schiffrin* (University of Chicago)
Failure of Phase Space Volume Arguments to Retrodict the Past
- 4:40-4:55 Cédric Grenon* (Queen's University)
A swiss-cheese model with evolving inhomogeneities
- 4:55-5:10 Stephen Green* (University of Chicago)
Backreaction of small scale density inhomogeneities in cosmology
- 5:10-5:25 Ryo Saotome* (University of Michigan)
Gravitational Collapse of a K-essence Scalar Field
- 5:25-5:40 Prabath Peiris* (Rochester Institute of Technology)
Spectral initial data for multiple black hole systems
- 5:40-5:55 Marcelo Ponce* (Rochester Institute of Technology)
Event Horizons from initially stationary BH "ring" configurations

Reception (6:00-)

Science Complex

DAY 2 (6 November 2010, Saturday)

8:30-9:00 Continental Breakfast

Session 5 (9:00-10:45) Session Chair: Carlos Lousto

- 9:00-9:15 Matthew West* (Syracuse University)
Discriminating signals and background in a search for Binary Neutron Star coalescences
- 9:15-9:30 Sydney J. Chamberlin* (University of Wisconsin-Milwaukee)
Detection of non-Einsteinian gravitational waves using a pulsar timing array
- 9:30-9:45 Nick Tacik* (University of Toronto)
A Parameter Space Study of Junk Radiation in Binary Black Hole Simulations
- 9:45-10:00 Roman Gold* (Friedrich Schiller University, Jena)
Zoom whirl orbits and eccentric black hole binaries
- 10:00-10:15 Harald Pfeiffer (CITA)
Controlling orbital eccentricity for precessing binary black holes
- 10:15-10:30 Abdul Mroue (CITA)
Precessing binary black holes simulations
- 10:30-10:45 Serguei Ossokine* (University of Toronto)
Rotationally invariant dual frame approach to binary black hole evolution

Coffee Break (10:45-11:05)

Session 6 (11:05-12:50) Session Chair: Robert Mann

- 11:05-11:20 Madeline White* (University of Wisconsin-Milwaukee)
Construction of Coherent and Null Data Streams
- 11:20-11:35 Collin Capano* (Syracuse University)
The Search for Low Mass Compact Binary Coalescences in LIGO's Fifth and Virgo's First Science Run
- 11:35-11:50 Satyanarayan Ray Pitambar Mohapatra* (University of Massachusetts, Amherst)
Searching for gravitational waves from binary black hole coalescences with chirplet template families
- 11:50-12:05 Ilana MacDonald* (University of Toronto)
Evaluating errors in hybrid gravitational waveforms
- 12:05-12:20 Richard O'Shaughnessy (University of Wisconsin-Milwaukee)
Selection biases of nonspinning searches for spinning binaries in ground-based detector data
- 12:20-12:35 Seth Hopper* (University of North Carolina)
Frequency domain approach to modeling extreme-mass-ratio binary black hole inspirals
- 12:35-12:50 Abhay Shah* (University of Wisconsin-Milwaukee)
Self-force on a particle in circular equatorial orbit around a Kerr black hole

Lunch (12:50-1:50)

Session 7 (1:50-3:40) Session Chair: Kayll Lake

- 1:50-1:55 Announcement of the Blue Apple Award winner
- 1:55-2:10 John Friedman (University of Wisconsin-Milwaukee)
Filling in the missing pieces in a radiation-gauge self-force calculation
- 2:10-2:25 Ian Vega (University of Guelph)
Effective source for self-force calculations
- 2:25-2:40 Dinesh Singh (University of Regina)
A New Perspective on Path Integral Quantum Mechanics in Curved Space-Time
- 2:40-2:55 Ko Sanders (University of Chicago)
Self-adjointness in QFT on curved spacetimes
- 2:55-3:10 John Whelan (Rochester Institute of Technology)
A Cross-Correlation Technique to Search for Periodic Gravitational Waves
- 3:10-3:25 Kipp Cannon (CITA)
Improving the Sensitivity of a Search for Gravitational-Wave Bursts from Cosmic Strings
- 3:25-3:40 Karen Camarda (Washburn University)
Dynamical Bar-Mode Instability in Differentially Rotating Magnetized Rotating Stars

Coffee Break (3:40-4:00)

Session 8 (4:00-5:30) Session Chair: Eric Poisson

- 4:00-4:15 Robert Mann (University of Waterloo)
Higher-order Curvature Corrections to Lifshitz black holes
- 4:15-4:30 Valerio Faraoni (Bishop's University)
Black holes in scalar-tensor/f(R) gravity and the thermodynamics of spacetime
- 4:30-4:45 Arundhati Dasgupta (University of Lethbridge)
Time Evolving Horizons
- 4:45-5:00 Ariel Edery (Bishop's University)
Extremal black holes, gravitational collapse and thermodynamics
- 5:00-5:15 Charles Sven
Center of the Universe Located by Triangulation of NASA Data
- 5:15-5:30 John R. Laubenstein (IWPD Research Center, Inc.)
In Search of Event Horizons using the Equivalence Principle