

## Numerical Relativity beyond General Relativity

June 3-9, 2018.

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**Note:** Mornings will be dedicated to structured talks, while less formal discussions will take place in the afternoons. We have seeded some of the afternoons with possible discussion topics, but we encourage all participants to propose (and perhaps lead!) afternoon discussions relevant to the goals of the workshop. Please let us know if you would like to add a discussion to the program. If you want to help preparing a discussion which is already listed here, feel free to contact the discussion leader and coordinate material.

### Monday, June 4

- 09.00-09.20. Registration
- 09.20-09.30. Welcome
- 09.30-10.00. Sotiriou. "Theoretical motivation for beyond-GR theories"
- 10.00-10.30. Yagi. "Testing GR with gravitational waves: theory-agnostic or specific tests?"
- 10.30-11.00. Pretorius. "The promise of numerical relativity"
- 11.00-11.30. Coffee break
- 11.30-11.45. Pappas. "Stationary solutions in theories beyond GR"
- 11.45-12.00. Ramazanoglu. "Exploiting non linearities to evade constraints"
- 12.00-12.15. Zahra. "Quasi-Normal Modes of Scalarized Neutron Stars"
- 12.15-12.30. Blas. "Lorentz violations"
- 12.30-12.45. Johnson-McDaniel. "Charged black holes in GR and beyond"
  
- 14.30- Suggested discussion: Primer on NR (TBA)
- 15.30- Suggested discussion: Breaking degeneracies: I-love-Q and friends (Yagi)
- 16.30- *Your discussion here!*

### Tuesday, June 5

- 09.30-10.00. Del Pozzo. "Current LIGO results on testing GR"
- 10.00-10.30. Purrer. "Understanding systematics in GR"
- 10.30-11.00. Ossokine. "The interface between numerical and analytical relativity"
- 11.00-11.30. Coffee break
- 11.30-11.45. Sennett. "Waveform modeling effects in theory-agnostic tests of GR"
- 11.45-12.00. Haster. "Waveform uncertainties and their impact in parameter estimation"
- 12.00-12.15. Vano-Vinuales. Reaching infinity in numerical simulations
- 12.15-12.30. Heffernan. "Waveforms in scalar-tensor theory of gravity: part I"
- 12.30-12.45. Bernard. "Waveforms in scalar-tensor theory of gravity: part II"
  
- 14.30- *Your discussion here!*
- 15.30- *Your discussion here!*
- 16.30- *Your discussion here!*

### Wednesday, June 6

- 09.30-10.00. Maselli. "Beyond black holes (exotic compact objects)"  
10.00-10.20. Brito. "Superradiance: part I (background)"  
10.20-10.40. East. "Superradiance: part II (numerics)"  
10.40-11.00. Bantilan. "Numerical simulations in AdS spacetimes"  
11.00-11.30. Coffee break  
11.30-11.45. Zhou. "Can the graviton have a large mass near black holes?"  
11.45-12.00. Agathos. "Searching for echoes search with LIGO"  
12.00-12.15. Palenzuela. "Boson stars"  
12.15-12.30. Bezares. "Mergers of Exotic Compact Objects"  
12.30-12.45. Helfer. "Collisions of axion stars"
- 14.30- Suggested discussion: NR results in AdS (Figueras)  
15.30- Suggested discussion: Superradiance for experts (Zilhao)  
16.30- *Your discussion here!*
- 19:30- Reception+dinner

### Thursday, June 7

- 09.30-10.00. Lehner. "Different approaches in numerical relativity beyond general relativity"  
10.00-10.20. Rosca. "Core collapse in scalar tensor theories"  
10.20-10.40. Ripley "Collapse in Einstein-dilaton Gauss-Bonnet gravity"  
10.40-11.00. Liebling. "Black hole dynamics in Einstein-Maxwell-Dilaton theory"  
11.00-11.30. Coffee break  
11.30-11.50. Okounkova. "Black hole binaries in dynamical Chern-Simons gravity"  
11.50-12.10. Gualtieri. "Black hole binaries in Einstein-dilaton-Gauss-Bonnet gravity"  
12.10-12.30. Kocic. "Developments in numerical bimetric relativity"
- 14.30- Suggested discussion: Open source codes: GRChombo (Figueras), Einstein Toolkit (Etienne/Witek/Zilhao), SENR/NRPy+ (Etienne) and more!  
15.30- *Your discussion here!*  
16.30- *Your discussion here!*

### Friday, June 8

- 09.30-10.00. Lim. "Numerical relativity in cosmology"  
10.00-10.15. Noller. "New constraints after GW170817/GRB170817"  
10.15-10.45. Yunes. "Tests of gravity with LISA and 3rd generation detectors"  
10.30-11.00. Oltean. "Numerical approaches to the self-force problem"  
11.00-11.30. Coffee break  
11.30-11.45. Musco. "Numerical simulations of primordial black-hole formation"  
11.45-12.00. Clough. "Inhomogeneous inflation"  
12.00-12.15. Drew. "Cosmic strings 1"  
12.15-12.30. Aurrekoetxea. "Cosmic strings 2"
- 14.30- *Your discussion here!*  
15.30- *Your discussion here!*  
16.30- *Your discussion here!*