

# Workshop on Nonlinear Aspects of General Relativity

@ 407 Jadwin Hall  
Princeton University

## Tuesday 10/Oct:

8:30	<i>opening &amp; breakfast</i>
9:00	<b>Emanuele Berti</b> Nonlinear black hole spectroscopy
10:00	<i>coffee break</i>
10:30	<b>Stephen Green</b> Orthogonality of Kerr quasinormal modes and nonlinear ringdown dynamics
11:30	<b>Aaron Zimmerman</b> A modified Teukolsky equation for computing spectral shifts of rotating black holes
12:30	<i>lunch</i>
14:00	<b>Elena Giorgi</b> Nonlinear stability of black holes: a mathematical overview
15:00	<i>coffee break</i>
15:30	<b>Martin Taylor</b> Future stability of FLRW solutions of the Einstein-massless Masov system in spherical symmetry
16:30	<i>reception for all</i>
18:30	

## Wednesday 11/Oct:

<i>breakfast</i>	8:30
	9:00
<b>Jonathan Luk</b> High frequency spacetimes in general relativity	10:00
<i>coffee break</i>	10:30
<b>Robert Wald</b> Dynamical black hole entropy	11:30
<b>Stefan Hollands</b> Metric reconstruction and non-linear mode coupling	12:30
<i>lunch</i>	
	14:00
<b>Marc Casals</b> Quantum effects inside black hole spacetimes	15:00
<b>Flash! talks</b>	15:30
<i>coffee break</i>	16:00
<b>Maxime van de Moortel</b> Co-existence of null and spacelike singularities in the interior of dynamical black holes	17:00

**Organizers:** Alejandro Cárdenas-Avendaño (Princeton), Macarena Lagos (Columbia), Adam Pound (Southampton), Igor Rodnianski (Princeton), Gautam Satishchandran (Princeton), Leo Stein (Mississippi), Rita Teixeira da Costa (Princeton/Cambridge), Niels Warburton (UC Dublin)

## Thursday 12/Oct:

8:30	breakfast
9:00	<b>Barry Wardell</b> Gravitational waveforms for compact binaries from second-order self-force theory
10:00	coffee break
10:30	<b>Maarten van de Meent</b> Demystifying the bound-to-boundary correspondence using geodesics
11:30	<b>Flash! talks</b>
12:00	lunch
14:00	<b>Peter Hintz</b> Gluing small black holes along timelike geodesics
15:00	coffee break
16:00	<b>Harvey Reall</b> Creases and caustics on black hole event horizons
17:00	

Physics Department  
Colloquium @ Room A10

## Friday 13/Oct:

8:30	breakfast
9:00	<b>Luis Lehner</b> Non-linear behavior of black hole horizons from different approaches
10:00	coffee break
10:30	<b>Béatrice Bonga</b> Nonlinearities at black hole horizons
11:30	<b>Georgios Moschidis</b> Weak turbulence on Schwarzschild-AdS spacetime
12:30	lunch & closing
14:00	

### Princeton Center for Theoretical Science



The Princeton Center for Theoretical Science is dedicated to exploring the frontiers of theory in the natural sciences. Its purpose is to promote interaction among theorists and seed new directions in research, especially in areas cutting across traditional disciplinary boundaries. The Center is home to a corps of Center Postdoctoral Fellows, chosen from nominations made by senior theoretical scientists around the world. A group of senior Faculty Fellows, chosen from science and engineering departments across the campus, are responsible for guiding the Center. Center activities include focused topical program chosen from proposals by Princeton faculty across the natural sciences. The Center is located on the fourth floor of Jadwin Hall, in the heart of the campus "science neighborhood". The Center hopes to become the focus for innovation and cross-fertilization in theoretical natural science at Princeton.

**Faculty Fellows:** Igor Klebanov (Director), Ned Wingreen (Associate Director), Andrei Bernevig, Jeremy Goodman, Duncan Haldane, Andrej Košmrlj, Mariangela Lisanti, Frans Pretorius, Silviu Pufu, Eliot Quataret, Shinsei Ryu

### Princeton Gravity Initiative



The Princeton Gravity Initiative is a collaborative effort between Princeton's Astrophysics, Mathematics, and Physics departments to explore the fundamental nature of gravity.

**Faculty Fellows:** Mihalis Dafermos (Director), Adam Burrows, Simone Giombi, Jeremy Goodman, Alexandru Ionescu, Sergiu Klainerman, Igor Klebanov, Frans Pretorius, Eliot Quataret, Igor Rodnianski, Anatoly Spivovsky, Paul Steinhardt, Herman Verlinde



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