ALEX LUPSASCA:
THE SHAPE OF THE BLACK HOLE PHOTON RING: A PRECISE TEST OF STRONG-FIELD GENERAL RELATIVITY

Abstract: We propose a new test of strong-field general relativity (GR) based on the universal interferometric signature of the black hole photon ring. The photon ring is a narrow ring-shaped feature, predicted by GR but not yet observed, that appears on images of sources near a black hole. It is caused by extreme bending of light within a few Schwarzschild radii of the event horizon and provides a direct probe of the unstable bound photon orbits of the Kerr geometry. We show that the precise shape of the observable photon ring is remarkably insensitive to the astronomical source profile and can therefore be used as a stringent test of GR. We forecast that a tailored space-based interferometry experiment targeting M87* could test the Kerr nature of the source to the sub-sub-percent level.
PHOSPHINE GAS IN THE CLOUD DECKS OF VENUS

Measurements of trace gases in planetary atmospheres help us explore chemical conditions different to those on Earth. Our nearest neighbour, Venus, has cloud decks that are temperate but hyperacidic. Here we report the apparent presence of phosphine (PH₃) gas in Venus’s atmosphere, where any phosphorus should be in oxidized forms.

Go to Article

PROTECTING THE NIGHT SKY

an upcoming (Oct 5-9) workshop on light pollution including (but not limited to) the impact of satellite constellations on astronomy. This workshop will prepare a report to the United Nations.

View Announcement

POSTDOC SYMPOSIUM 2020 (VIRTUAL)

The Postdoc Symposium is next Friday, Sept 25! If you are a postdoc and have not yet signed up, please consider signing up by Tuesday, Sept 22.

Sign up Here
ITC COLLOQUIUM SCHEDULE

The ITC holds a weekly Colloquium Series every Thursday from 11am to 12pm.

This week, September 24th, features:

Kim Boddy (U Texas Austin), Searching for Dark Matter Interactions in Cosmology

Marie Korsaga (U Cape Town), Astronomers’ response to the COVID-19 pandemic

Zoom Link HERE (password ITC)

BHI FOUNDATIONS SEMINAR:
MONDAYS AT 10AM

Today, Sept 21, Martin Lesourd Presents Part 2 of Modern Mathematical Trends in General Relativity

Abstract: Mathematicians have progressed leaps and bounds in their understanding of the Einstein Field Equations in the last 50 years. This work, however, is hard to access and its significance is not always well understood. In these two talks, I will try to sketch a panoramic view of the biggest questions in the field, the current trends, and some of the most exciting ideas around. The idea being to give (in the time given!) an honest portrayal of what actually falls under the purview of the current set of ideas.

Join Zoom Here