

4/12/06

Exam 4, Friday, April 28

Final, Saturday, May 13, 2 - 5 PM Comprehensive

Wheeler in College Station T, Th, Cosmology Symposium,
Lisa Randall, inventor of idea of large extra dimensions

News: Venus Express, launched by European Space Agency orbit
insertion successful - "12 to 13 April 2006: Spacecraft full
reactivation starts during the 24 hours following the orbital capture,
time will be dedicated to reactivate all spacecraft functions,
including all internal monitoring capacity."

Pic of the day; binary, orbiting, supermassive
black holes, doomed to collide.



Rotating Kerr Black Hole

Mass and spin, but no electrical charge

Assume all mass in singularity, no mass anywhere else
(assumption necessary to solve equations)

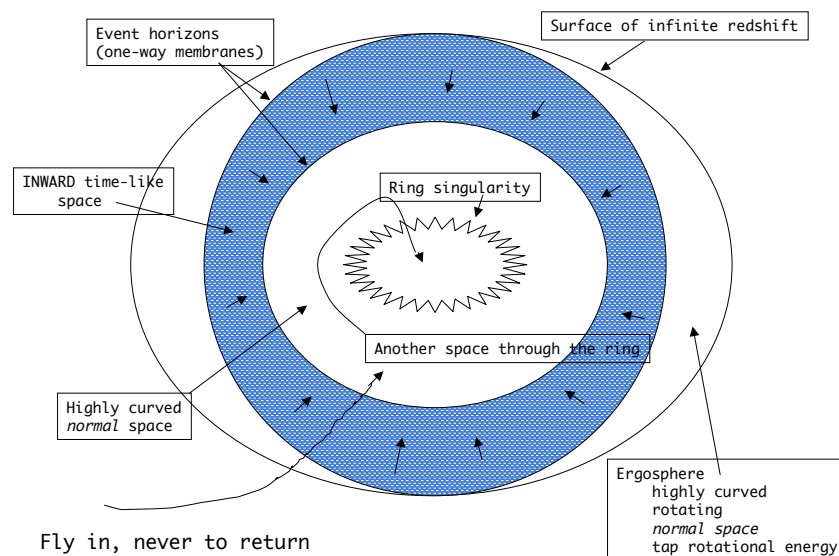
Find *singularity is a ring* (not a point)



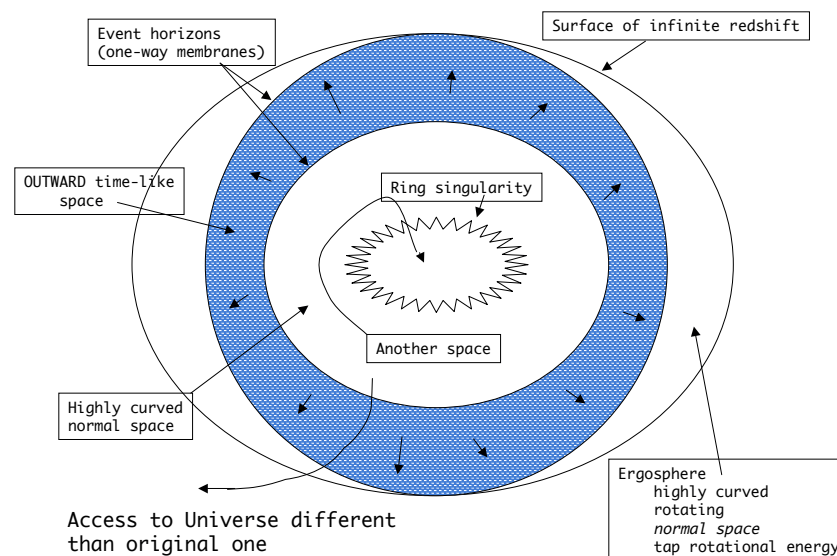
0 thickness, ∞ density, still uncertainty problem

Infinite Universes!

Cross-sectional view of rotating Kerr black hole



In future



Are Different Universes Real?

In Real Universe:

Light falls in

Accelerated to higher energy: Bluesheet
warp space
change mathematical, hence physical solution

So, probably not in this case, but stay tuned...

Chapter 10 - Finding Black Holes for Real

There may be 1 - 100 million black holes in the Galaxy made by collapsing stars over the history of the Galaxy. How do we find them?

Black holes made from stars are really black! (Negligible Hawking radiation).

Those alone in space not impossible to find, but very tough.

Look for binary systems, where mass accretion occurs.

Will not see the black hole, cannot yet “see” a black spot.

Can detect *halo of X-rays* from orbiting matter near the event horizon that will reveal the presence and nature of the black hole. ***Look in accreting binary systems!***

