9/15/06

Exam 1: Week from Today

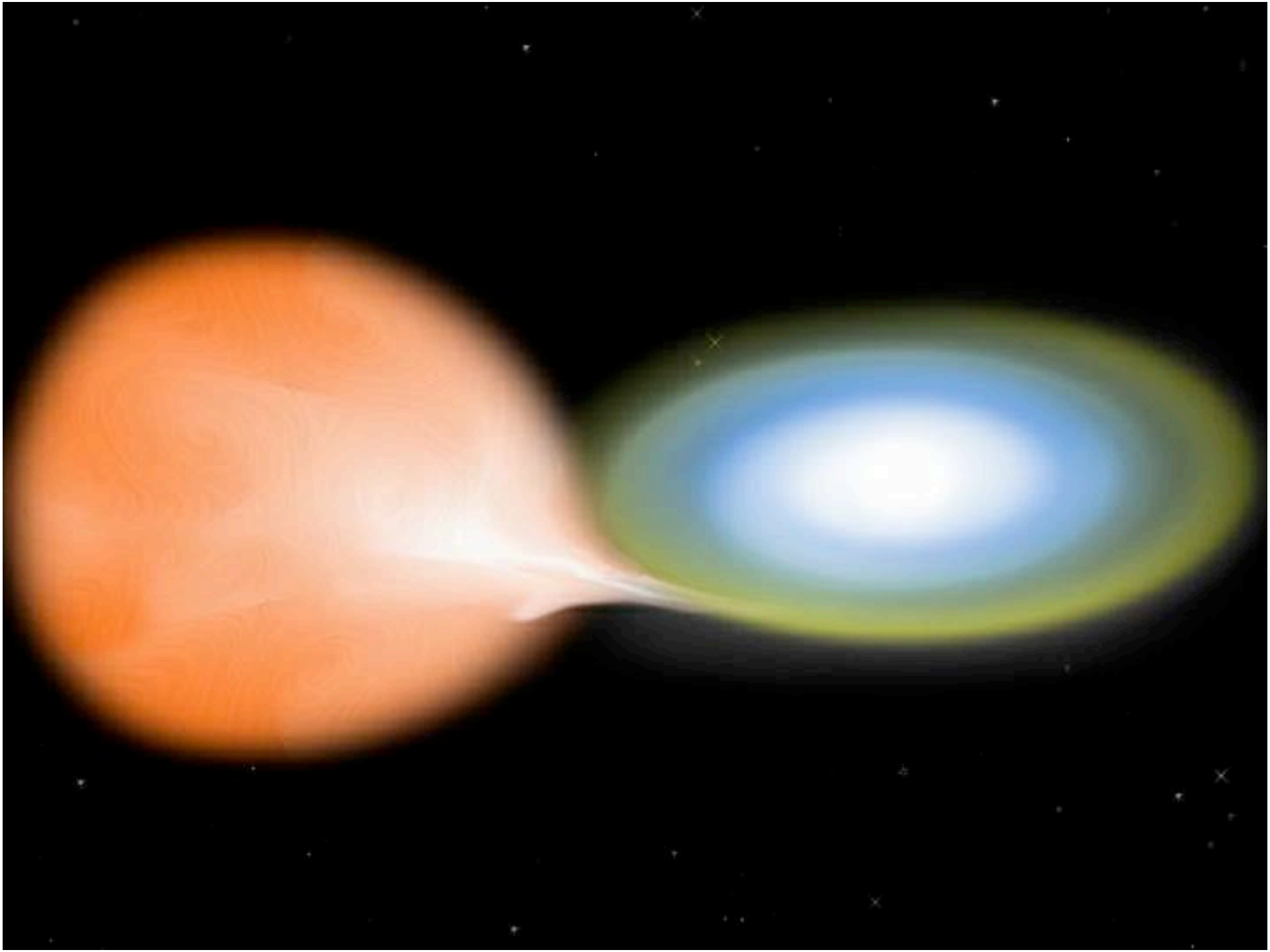
Chapter 5, portions of chapters 1 - 4, Friday, September 22, 40 multiple-choice questions

Review sheet will be posted on web site next week

Review session Thursday 5 PM RLM 4.102 [NOTE different room than help sessions].

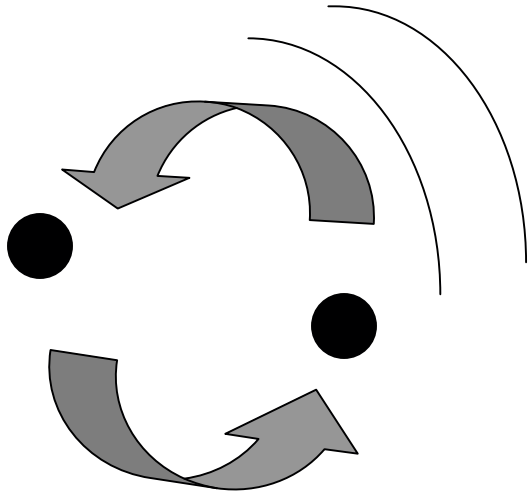
Astronomy in the news?

Pic of Day - star trails



We do observe 2 WDs in orbit in some cases - is that the end?

No: ***gravitational radiation*** (§ 3.10)



ripples in curved space-time

like paddle on surface of pond

remove energy from orbit - acts as drag

If you try to slow down an orbiting object what happens?

Falls inward, speeds up,
Get more gravitational radiation, more inspiral

Given enough time (billions of years) 2WD must spiral together!

One Minute Exam

Name three situations where we have talked about friction and drag causing orbiting stuff to fall inward and ***move faster***.

Flow of gas in accretion disk

Two stars orbiting in a common envelope

Two orbiting white dwarfs losing energy to gravitational radiation

What happens when two white dwarfs spiral together?

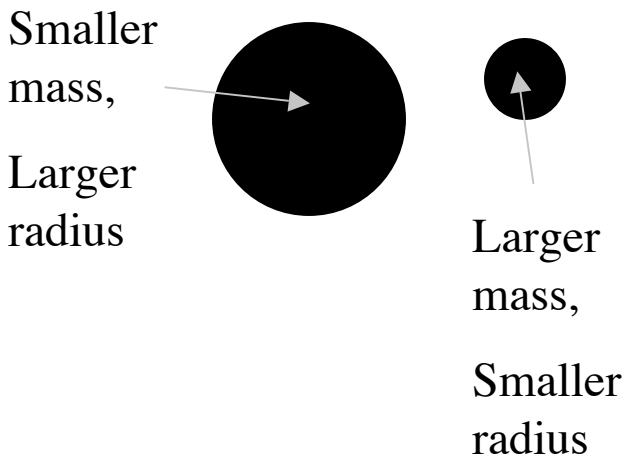
Larger mass WD has smaller radius

Which WD has the smaller Roche lobe?

The smaller mass

Which fills its Roche Lobe first?

Must be the smaller mass



As small mass WD loses mass, its ***radius gets larger***,
but its ***Roche Lobe gets smaller***! Runaway mass transfer.

Small mass WD transfers essentially all its mass to larger mass WD

Could end up with one larger mass WD

If larger mass hits M_{ch} → could get explosion => Supernova

End of Material for Test 1