Thursday, April 16, 2009

International Year of Astronomy extra credit

Do some research on the IYA.

Write up a brief report. 1/2 to 1 page.

Due by end of term

Do not just copy and paste from a web site.

The latest chapter in the story:

Intermediate mass black holes, of order 1000 - 10,000 M_{\odot}

First suspected from very bright X-ray sources,

Even the gravity of a neutron star would not be enough to bind the mass (see Eddington limit luminosity, Chapter 2, Section 2).

This remains controversial.

Gebhardt and co-workers have apparently found intermediate mass black holes in *globular clusters* using stellar velocities.

Globular clusters are old, nearly spherical clusters containing about 100,000 stars.

Remarkably, these black holes may follow exactly the same bulge mass, black hole mass relation as galaxies, the black hole is about one thousandth of the mass of the globular cluster!

These star clusters also "know" how big a black hole to form!

Maybe a clue to how the process works in whole galaxies.

M 15 in our Galaxy, 4000 M_{\odot} black hole



G1 in Andromeda galaxy, 20,000 M_{\odot} black hole

Latest development:

Gebhardt and recent Texas PhD Eva Noyola announced the identification of a black hole of 40,000 solar masses in the center of the globular cluster Omega Centauri



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