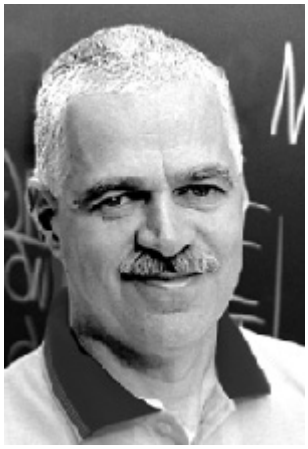
Stars laid bare by new technique



Dr. Gilles Fontaine

Université de Montréal astrophysicist Dr. Gilles Fontaine and his team recently developed new numerical techniques for interpreting the light signals from pulsating stars in the Milky Way. Dr. Fontaine specializes in astroseismology. His approach is very much like that of a geophysicist who analyzes seismic waves to establish a picture of the deep structures of the Earth. When the new techniques are applied to starlight data, the internal structure of the star is revealed, and researchers gain an overall picture of the object.

And how complete is that picture?

Using an NSERC funded instrument on the Canada-France-Hawaii telescope, Dr. Fontaine's group had earlier detected and measured extremely faint oscillations in luminescence in star PG0014+067 (a stellar body with a rather plain name, and one that is invisible to the naked eye). By applying the techniques to the light data, the team was able to fix the star's mass, dimension, surface temperature, internal chemical composition, period of rotation and distance from the sun!

For the complete and precise characteristics of PG0014+067, contact Dr. Fontaine at: (450) 443-9218 (Since Dr. Fontaine observes stars most evenings, the best way to reach him is via e-mail, at fontaine@astro.umontreal.ca)

Dr. Gilles Fontaine is one of the world's leading experts in the study of the star categories known as white dwarfs and sub dwarfs, and particularly those that pulsate. Detailed analysis of these stars is allowing astrophysicists to deduce new information about the characteristics of galaxies and even the age of the Universe itself. In the 1980s, Dr. Fontaine and his team came up with the surprising figure of 12 billion years for that age. It's an estimate that still stands up well today. Now, his new astroseismological methods, which work on a large number of white dwarf stars, are attracting a lot of interest from researchers around the world.

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