

SUN MAY NOT BE A LONE STAR- January 1978

An astronomer from the University of Massachusetts, writing in a recent issue of the scientific journal Nature, argues that our Sun probably has an unseen companion somewhere out there in the direction of the constellation Sagittarius. Dr Edward Harrison has been carefully studying the rates of rotation of 85 pulsars, those stellar corpses which have collapsed into a small sphere of neutron matter which spin on their axes at rates as high as thirty times per second. The magnetic fields of these neutron stars causes them to emit a pulse of radio waves each time they turn and their regular pulses are like cosmic time signals, which can be measured with incredible precision. Five of the 85 pulsars, all five in the same direction in the sky, have about 100 times lower slow-down rate than the others and therefore have consistent accuracies better than one part in a thousand million million. Dr Harrison considers that this improvement could be a subtle result of a hitherto unsuspected motion of the Sun and solar system about an undetected nearby star. Possibly our unseen companion could be a black hole, but it is likely that x-rays emitted by interstellar material falling into the black hole would have betrayed its presence. Alternatively it might be a crystallised white dwarf too small and dim to notice or perhaps a red or black dwarf star which never ignited properly. Even so it is difficult to understand how such a nearby object could escape detection for so long with the tremendous number of powerful telescopes now in use.

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[http://en.wikipedia.org/wiki/Nemesis_\(star\)](http://en.wikipedia.org/wiki/Nemesis_(star))

Nemesis is a hypothetical red dwarf star or brown dwarf, orbiting the Sun at a distance of about 50,000 to 100,000 AU, somewhat beyond the Oort cloud. This star was originally postulated to exist as part of a hypothesis to explain a perceived cycle of mass extinctions in the geological record.

If Nemesis exists, it may be detected by the planned Pan-STARRS or LSST astronomical surveys, or similar future projects. If Nemesis is a brown dwarf, as proposed by Dr. Dan Whitmire and Albert A. Jackson IV, then the upcoming [Wize Mission](#) (scheduled for November 2009) should easily find it.