

Abstract Submitted
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Do Radioactive Half-Lives Depend on the Earth-Sun Distance?

JOHN GOODWIN, JOHN HARDY, VICTOR IACOB, Cyclotron Institute, Texas A&M University, VICTOR GOLOVKO, Dept.of Physics, Queens Univ., Stirling Hall, Kingston, ON Canada — In recent articles [1-4], Jenkins *et al.* claim to have evidence that radioactive half-lives vary as a function of the earth-to-sun distance. They base their claims on data obtained by others over the space of several years – the decay of ^{32}Si as measured at Brookhaven National Laboratory [5] from 1982-85 and that of ^{226}Ra as measured at the Physikalisch Technische Bundesanstalt in Germany [6] from 1984-88 – in which the decay rates show a small but statistically significant oscillation with a period of one year and approximately correlated with the earth-sun distance (and with the seasons). Here we report a series of seven measurements of the ^{198}Au half-life (see [7] for a description of two of these) made by us at various intervals over a period of one aphelion-aphelion cycle. Each measured half-life has a precision of about 0.02%. There is no evidence of any deviation from a constant half-life. [1] J. H. Jenkins *et al.*, *Astropart. Phys.* **31** 407 (2009) [2] J. H. Jenkins *et al.*, *Astropart. Phys.* **32**, 42 (2010) [3] E. Fischbach *et al.*, *Space Sci. Rev.* **145**, 285 (2009) [4] J. Jenkins *et al.*, arxiv:0912:5385v1 [5] D. Alburger *et al.*, *Earth and Planet. Sci. Lett.* **78**, 168 (1986) [6] H. Siegert *et al.*, *Appl. Radiat. Isot.* **49**, 1397 (1998) [7] J. R. Goodwin *et al.*, *Eur. Phys. J. A* **34**, 271 (2007).

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