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Non-dependence of the decay rates of ^{123}I and ^{99m}Tc on Earth-Sun distance[1] JOSEPH BORRELLO, Advanced Radiology Services - Kalamazoo, ALAN WUOSMAA, Univ of Connecticut - Storrs, MARK WATTS, Bronson Methodist Hospital - Kalamazoo — In 2009, Jenkins *et. al.* reported a cyclic variation with a period of one year in the decay rates of ^{32}Si ($T_{1/2}$= 153 y) and ^{226}Ra ($T_{1/2}$=1600 y), based on reviews of previously published decay data for those nuclei. It was suggested that this variation was related to the annual variation of the solar-neutrino flux due to varying Earth-Sun distance, implying surprising new physics. This result was subsequently examined by other researchers, and has been the subject of over thirty papers published since that time. We have searched for such a variation in the decay rates of two shorter-lived radionuclides which have not previously been studied for annual variation: ^{123}I ($T_{1/2}$=13.2235 h) and ^{99m}Tc ($T_{1/2}$=6.0067 h). Half-lives of these radionuclides were measured repeatedly over a period of 2 years. Spectral analysis of the accumulated half-life data using the Lomb-Scargle method demonstrated no periodic dependence of either half-life, and in particular no evidence for a variation with a period of 1 year.

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Alan Wuosmaa
Univ of Connecticut - Storrs

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