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Isospin Considerations in Energy Level Spacings within the Shell Model MICHAEL QUINONEZ, Central Connecticut State University, ARUN KINGAN, LARRY ZAMICK, Rutgers U. — The GXFP1 effective interaction with configurations confined to the f-p shell is used within the program NuShellx to generate energy levels of nucleons in ^{44}Ti . We construct nearest neighbor spacing histograms first with all isospins present (T=0, 1, and 2) and then ones with only one isospin present e.g. all T=0. With all isospins present we get something close to a Poisson distribution with a peak in the interval 0-0.1 mean spacing units. When we have states of only one isospin and one angular momentum e.g. J=4 T=0 the distribution becomes more Wigner-like, with much fewer entries in the lowest interval. The same is true for J=4 T=1 and J=4 T=2. We relate this behavior to level repulsion. We consider variances and other methods of analyzing the distributions.

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