Sensitivity analysis of random shell-model interactions PLAMEN
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configuration-interaction shell model includes many dozens or even hundreds of inde-
pendent two-body matrix elements. Previous studies have shown that when fitting
to experimental low-lying spectra, the greatest sensitivity is to only a few linear
combinations of matrix elements. Following Brown and Richter [1], here we con-
sider general two-body interactions in the 1s-0d shell and find that the low-lying
spectra are also only sensitive to a few linear combinations of two-body matrix ele-
ments. We find out in particular the ground state energies for both the random and
non-random (here given by the USDB) interaction are dominated by similar matrix
elements, which we try to interpret in terms of monopole and contact interactions,
while the excitation energies have completely different character.

[1] B. Alex Brown and W. A. Richter, Phys. Rev. C 74, 034315 (2006)

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