R-**Matrix Approaches to Isospin and Mirror Symmetry**[1] CARL
BRUNE, Ohio University — *R*-matrix theory may utilized to relate partial widths
or asymptotic normalization constants in one nucleus to the corresponding quantities
for states in other nuclei that are related by isospin or mirror symmetry. Specific
methods of implementing these relationships will be reviewed and applied to *s*-wave
mirror levels in nucleon+^{12}C, nucleon+^{16}O, and nucleon+^{26}Al. Particular attention
is paid to effects arising from beyond the nuclear surface, where isospin symmetry is
strongly violated. Finally, a new approach to multi-level mirror symmetry is derived
and applied to the first three 2^+ states of ^{18}O and ^{18}Ne. In this case, significant
deviations from naive mirror symmetry are found, due to external mixing of the
levels.

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Date submitted: 26 Jun 2020   Electronic form version 1.4