

5. REVIEW ACTIVITIES

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A = 21-44

In 1973 our fifth review ¹⁾ appeared on the properties of A = 21-44 nuclei. Since then, the extraction of data for a sixth edition has continued. Writing on this edition has started in the fall of 1976 with the result that A = 21 is now being typed.

The new version will show some substantial differences compared with previous ones. Most important might be the addition of tables containing the arguments for J^π assignments. At the end of each A-value isospin multiplets are presented in tabular form and a discussion of the shell-model properties of some states. Arguments for T-assignments have been critically reviewed, and a division has been made between "strong" and "weak" arguments.

Gamma-ray strengths. In two previous review papers [refs. ^{2,3)}] the strengths have been listed of γ -ray transitions between bound states in A < 45 nuclei. The main purpose of this exercise was to arrive at "recommended upper limits" (RUL's), which are now widely used. Input data for some transitions of unusual strength have been checked both in Utrecht and elsewhere.

The literature scan for new strengths has been kept up, and the 1974 total ³⁾ of 950 transitions with known strength has now grown to well over 1300. So far it is not necessary to revise the RUL's.

Spectroscopic factors. Measured spectroscopic factors for single-nucleon transfer are in notoriously poor mutual agreement. For final nuclei in the A = 21-44 region *some* 180 papers have been scanned. Questions as to the normalization were solved by sending out questionnaires to the authors. By reducing all data to the same set of normalization constants, it turns out that a) this set yields internally consistent results; for example the S-values for equivalent reactions, as (d,n) and (³He,d), are equal; b) to measured S-values an experimental error of 25% can be assigned.

Where possible, results have been averaged ⁴⁾ so as to produce a "best set" of S-values (with errors given) for comparison with theoretical calculations.

- 1) P.M. Endt and C. van der Leun, Nucl. Phys. A214 (1973) 1 and A248 (1975) 153 (erratum)
- 2) P.M. Endt and C. van der Leun, Atomic Data and Nuclear Data Tables 13 (1974) 67
- 3) P.M. Endt and C. van der Leun, Nucl. Phys. A235 (1974) 27
- 4) P.M. Endt, Atomic Data and Nuclear Data Tables (to be published)