Completeness of EXFOR compilation as indexed in CINDA

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I have been asked to make a rough completeness check of the EXFOR compilation. The only survey that may give a reasonable answer is to compare blocks in CINDA with EXFOR index lines to the total number of experimental blocks.

Since I had to do that comparison manually, and it was a last minute effort, the check is not comprehensive. I selected one or a few labs from each area – OHO, part of ORL, WAL-WAU for area1, JUL for area 2, several labs for area 3 and KUR for area 4 - and restricted the selection of blocks to references from 1990 onwards. The results are as follows:

area 1: about 70 % coverage
area 2: about 53 % coverage
area 3: about 90 % coverage
area 4: about 55 % coverage

For <u>area 1</u>, the main contributors to 'misses' are 0EXFOR entries where data have been requested, and some papers with many reactions that have been missed.

The situation is similar for <u>area 2</u>, only that for several 0EXFOR entries no attempt to compile it is indicated (comments are: graphs or values given). On the other hand, there seem to be several cases that are not real misses of compilation, but appropriate reblocking is missing: references that are now labeled "without EXFOR" (either in separate block or with a different quantity like DNG-NEG) should be combined with a block with an EXFOR line.

For <u>area 3</u>, the main contributors to 'misses' are single lines with progress reports and inelasic resp. nonelastic gamma spectra, which are not compiled by NDS.

In the case of <u>area 4</u>, the main contributors to 'misses' are some JINR- reports and also entries for inelasic resp. nonelastic gamma spectra.

Common to all areas is
(1) incomplete indexing of EXFOR in CINDA: e.g. indexed as
    (a) NEG only for gamma production cross sections, but not for DNG or N2N which are often also specified in the publication and the EXFOR entries;
    (b) RES but not for STF which is also given.
(2) incorrect indexing of progress reports (PR), where insufficient information is given. Examples:

(a) A PR indicates "neutron capture studies" and is compiled in CINDA as NG, but the final publication contains capture gammas (SNG), and the original PR entry is overlooked.

(b) A PR indicates measurements for several quantities and a range of targets, which are all indexed in CINDA, but actually not all quantities have been measured for all targets. Again, no corrections are done for the wrong combinations.

(c) Similarly, if the energy range is not or only approximately specified, the connection between the PR and the final publication is not recognized.

My conclusion and recommendation is: Entries for progress reports should not be made unless the target-reaction combinations and the energy range are specified with sufficient accuracy and detail. An acceptable exception would be if the compiler initiates an EXFOR entry with that progress report information and keeps track of all the associated publications.