6 NSR

The Nuclear Science References file is a bibliographic data base covering low and intermediate energy nuclear physics, from 1910 to the present. It is supported as a part of the international nuclear structure data evaluation activity and its scope is largely consistent with that activity. Each reference covered is represented by an entry in the data base. An entry contains the reference citation and for most references published after 1968 a keyword abstract with indexing parameters derived from the keyword abstract. The data base is oriented toward nuclear structure physics. Journal articles, conference proceedings, laboratory reports and theses are covered for inclusion in the data base with highest priority being accorded to journals and important conferences. The new contents of the data base are published once a year in the NUCLEAR DATA SHEETS journal. The core journals covered in the data base are enumerated in the introduction to each NSR issue.

6.1 An NSR Entry

Each reference in the NSR data base is uniquely identified by a KEYNUMBER which consists of the last two digits of the publication year, the first two letters of the first author's last name and a final two characters, two digits for a primary reference (journal articles) or two letters for a secondary reference (all other entries), to make the eight-character keynumber unique, for example, `1978KR02 or 1991LAZZ`. An entry will be referenced by its unique eight-character code throughout the NSR data base.

An entry contains either a CODEN or a complete reference citation consisting of reference, author and title. In many cases both the CODEN and the full citation are included. The CODEN contains the reference type such a JOUR for journal, REPT for report, etc. For journals, this reference type code is followed by a shortened form of the journal coden, volume number and page. For other reference types, an abbreviated citation follows. For the full citation, the complete reference, authors and title is given.

Most data base entries prepared after 1968 have a keyword abstract which consists of quasi free-text abstract describing the contents of the publication. The abstract contains a complete list of the nuclides, reactions, decays and nuclear quantities mentioned. From this abstract, the indexing parameters called SELECTORS are derived by a computer program. These SELECTORS form the basis for the inverted index used in retrievals. The SELECTORS are designed to recognize logical linkages within the abstract automatically, generally restricting the linkages to those occurring within a sentence or a phrase. For example, if an abstract mentions the reaction ^{52}Cr(d,p) and ^{56}Fe(d,α), the reference would not be retrieved if the user had requested Target : ^{56}Fe and Reaction : (d,p). Each keyword abstract starts with a major topic for the paper such as RADIOACTIVITY, NUCLEAR REACTIONS, NUCLEAR STRUCTURE plus a few others. In the case where a paper falls into more than one category, there will be one set of abstract plus selectors for each major topic.

Because of the emphasis on nuclides, reactions, and decays, retrievals from the data base using one or more selections from these categories will be the most complete and accurate. Retrievals based on some of the broader subject categories may be less complete.

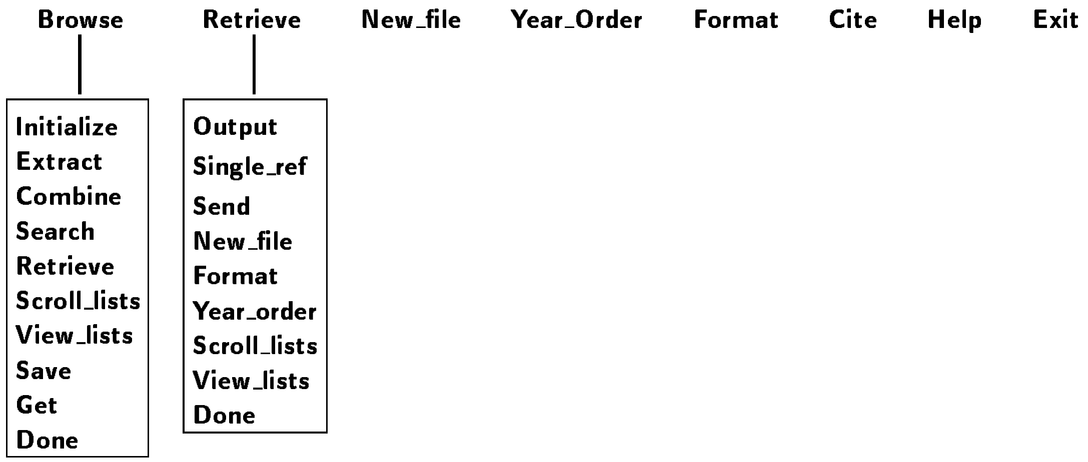
Each of the fields in an NSR entry is preceded by a tag consisting of a left arrow(`<`), eight characters, and a right arrow(`>`). The author list is preceded by `<AUTHORS >`. In order to support superscripts, subscripts, Greek letters and some special symbols in an ASCII file, control characters are included. For example, `{+154}` represents a superscript 154, `|?` means $\approx$, and `|q` stands for θ. An example of the contents of an NSR entry follows

Sample NSR Entry

```
<KEYNO   >1988LA05
<HISTORY >A19880516
<CODEN   >JOUR PYLBB 202 31
<REFRENCE>Phys.Lett. 202B, 31 (1988)
<AUTHORS >S.Landowne, C.H.Dasso
<TITLE   >Pronounced Deformation Effects on Low Energy Transfer Reactions
<KEYWORDS>NUCLEAR REACTIONS {+154},{+144}Sm({+144}Sm,X),{+154}Sm({+154}Sm
,X),E(cm) |? 310-350 MeV; calculated two-neutron pickup |s(|q) vs E.
<SELECTRS>T:154SM;A. T:144SM;A. R:(144SM,X);A. T:154SM;B. R:(154SM,X);B.
C:DSIGMA;A. C:DSIGMA;B.
```

6.2 NSR Options

The menus and the associated options are summarized in the following diagram. The options listed on the top line of the diagram represent the top-level menu. Where an option is itself a menu of sub-options, the secondary menu items are listed vertically below the top-level option. Each option and sub-option will be described in detail below. All top-level options will be given in the text all in capital letters; sub-options will also be given in capital letters with a slash between the option and sub-option. For example BROWSE and BROWSE/EXTRACT. See Section 5.6 and Section 5.5 for a discussion of the CITE and HELP options respectively.



Note that the SCROLL_LISTS option is available for use only in the video mode and the VIEW_LISTS option is available only in sequential mode.

The BROWSE options are designed to create list of keynumbers for user selected retrieval criteria and the RETRIEVE options are designed to retrieve entries corresponding the contents of a keynumber list from the data base. The RETRIEVE option can be activated either in the top menu or from the BROWSE menu. The NEW_FILE, YEAR_ORDER and FORMAT options select the output media, order of reference output and output format respectively. They also appear as part of the RETRIEVE option menu for convenience.

6.3 Retrieval Strategy

The basic strategy for using this data base is to determine the parameters, and the values of those parameters, which most accurately describe the references to be retrieved. The BROWSE top-level option should be used to create lists of keynumbers satisfying the user's criteria. In the BROWSE/EXTRACT option, the program will retrieve and store a list of the keynumbers which satisfy a parameter value. The BROWSE/EXTRACT option supports "wildcards" in the parameter specification when the value of the desired parameter is not known exactly. In this case, the program retrieves a list of possible parameter values and presents them as a menu from which the user can select. It is possible to restrict the publication type, date or entry date using the BROWSE/INITIALIZE option.

One can create reference lists which satisfy more complex criteria by performing Boolean operations on previously created lists using the BROWSE/COMBINE option. For example, if one were searching for papers by an author about a nucleus, one would first generate a keynumber list for the author with the BROWSE/EXTRACT option and then and one for the nucleus. Then combine the two lists in the BROWSE/COMBINE option with a logical AND operation.

When you are ready to look at the references corresponding to one or more of the reference lists already created, use the RETRIEVE option or if in the BROWSE option, you may select BROWSE/RETRIEVE instead. With the RETRIEVE/NEW_FILE option, you may specify whether terminal or disk output is desired. You can select the output format with the RETRIEVE/FORMAT option. The RETRIEVE/OUTPUT option allows you to output the entries corresponding to a reference list in the currently selected format and output file.

6.4 Indexing Variables

Reference entries may be retrieved by specifying one or more indexing variables and their desired values. The following table summarizes these variables.

	Definition
Nuclide	nuclide for which nuclear structure information is given
Target	target nuclide in a nuclear reaction
Incident Particle	an incident particle in a nuclear reaction
Outgoing Particle	an outgoing particle in a nuclear reaction
Reaction	a nuclear reaction code
Subject	a special subject code or a nuclear quantity, including all other quantity variables
Measured Quantity	a measured nuclear quantity
Deduced Quantity	a derived nuclear quantity
Calculated Quantity	a calculated nuclear quantity
Other Quantity	a compiled, analyzed or evaluated nuclear quantity
Author	an author's name
Key List	a user supplied keynumber list

Nuclides and Targets

Nuclides and targets are given in the same format. They may be specified either as isotopes or elements. An element is specified by its chemical symbol; an isotope by the mass number followed by the chemical symbol or by the chemical symbol and the mass number separated by a minus(`-`). The chemical symbol for element 104 and above is taken as the charge number less 100. For specification of an entire mass chain, that is all nuclides (not targets) with the same mass, enter only the mass number.

Valid examples	`47TI` or `TI-47`	titanium-47
	`NI` or `NI-0`	nickel
	`25904`	Element-104, mass 259
	`100`	Mass 100 (nuclides only)

Incident and Outgoing Particles

Incident or outgoing particles are generally entered in the same form as a nuclide, *e.g.* `7LI` or `LI-7` for lithium-7. However, gamma rays and some light particles which are represented with special symbols are:

gamma rays	`G` or `X-RAY`	sigma	`S-`
neutrinos	`NU` or `NUBAR`	neutron	`N`
electrons	`E` or `E+`	proton	`P`
muons	`MU` or `MU+` or `MU-`	deuteron	`D`
kaons	`K-` or `KO` or `K+`	triton	`T`
pions	`PI` or `PI-` or `PIO` or `PI+`	alpha	`A`

Reaction

Nuclear reactions should be entered in standard physics notation, that is (incident particle,outgoing particles). The surrounding parentheses are **OPTIONAL**. The particle codes to be used are those described under incident and outgoing particles. The order of outgoing particles is generally left to right first by particle mass, then by particle charge. *Never include gammas as outgoing particles unless gammas are the only outgoing particles.* If you are uncertain about how to specify a reaction or what reactions are possible use the "wildcard" construction to get a menu of relevant values. Some simple examples are

`(N,F) or N,F`	for	neutron fission
`N,NP`	for	(N,NP) and (N,PN)
`P,*`	for	a menu with all proton induced reactions.
`(N,?P*`	for	a menu with all neutron induced reactions with a P(proton) as the second character in the outgoing particles field.

When specifying a reaction in the BROWSE/EXTRACT option, you may precede the reaction code by a target specification. The open parenthesis separating the target and the reaction specification **MUST** be included. For example

`56FE(N,P)`	for	^{56}Fe(n,p)
`PB(D,T`	for	Pb(d,t)

Subjects and Quantities

The available subject and quantity parameters are listed below. Further details on the meaning of each of these variable values can be found in the online service help-file.

A-SPECTRA	ANALOGS	B(LAMBDA)	B-SPECTRA
BREMSSTRAHLUNG	CE	COULEX	DEFORMATION
DOPPLER	DSIGMA	FISSION	G-MULTIPOLARITY
G-SPECTRA	HI	HIGH-SPN	HYP-DEF
HYP-DEF	HYP-NUC	I-SHIFT	ICPND
LEVEL-PROP	MASSES	MECPD	MESIC-ATOMS
MU	N-SPECTRA	P-SPECTRA	PARAMETERS
POLARIZATION	Q	QUA-GLU	QUADRUPOLE
RADIUS	REL-EFF	RESONANCE	ROT-BANDS
S-FACTOR	SIGMA	SPALLATION	SUP-DEF
SUP-SYM	T1/2	TTY	X-RAYS
YIELDS	YRAST		

In addition there are subject categories for exotic decays where the retrieval parameter can be constructed from the decay mode and the word, DECAY. For example lithium-7 decay is `7LI-DECAY`.

Author

The name of any author of a publication can be entered. There are three possible formats illustrated below. If a first initial is not entered, then any paper with an author with the requested last name will be retrieved. If there are multiple authors with the same last name and first initial, their publications will be retrieved together. It is possible that initials of an author have not been given consistently in the literature or even spelling of the last name may not be consistent particularly for Russian and Chinese names. In such cases, the "wildcard" construction will be helpful.

last name only	`BAKER`
initial last	`BAKER,R.`
initial first	`R.BAKER`
wildcard	`DUN*`

Key List

This retrieval variable type allows the user to enter a list of keynumbers, the parameter value is any name used to identify the reference list to the user.

6.5 Wildcards in Indexing Variables

When the user in uncertain as to the exact value of a desired indexing parameter, then one or more "wildcards" can be included in the parameter specification. Use a question mark (?) to indicate a single character wildcard, that is, any single character may occur in that position. Use an asterisk (*) to indicate a variable number of any characters in that character position.

Nuclide — Enter a mass number followed by an asterisk and all of the nuclides for that mass number will be presented in a menu. Enter an asterisk followed by a charge number or a chemical symbol and all the nuclides for that charge number will be displayed in a menu.

Target — Enter a mass number followed by an asterisk and all of the stable and long lived isotopes for that mass number will be presented in a menu. Enter an asterisk followed by a charge number or a chemical symbol and all the stable and long lived isotopes for that charge number will be displayed in a menu.

Incident and Outgoing Particles — Enter a a mass number and all the particle codes with the same mass number will be displayed in a menu. Enter a zero to get all the light mass particles in a menu.

Subject — Enter combination of letters and wildcards to get a menu of relevant subjects or quantities.

Reaction — Enter reaction code with any of the two wildcard characters. If a wildcard appears in the incident particle field, the menu generation could be very slow since the list of possible reactions is indexed on the incident particle. A menu of possible reactions is displayed. **DO NOT** put a target in the wildcard specification.

Author — Enter an author last name with any of the two wildcard characters. If a wildcard appears in as the first character of the name, the menu generation could be very slow since the list of authors is indexed alphabetically. A menu of possible authors is displayed.

Wildcard Search Menu Display in Video Environment

Nuclear Science References

BROWSE   EXTRACT   **REACTION_SEARCH**

REACTION SEARCH (T,P*)

(T,P)	(T,PE)	(T,PD)
(T,PT)	(T,PA)	(T,PF)
(T,PI-X)	(T,PX)	DONE

(T,PA) - select this REACTION.

6.6 BROWSE

The BROWSE option which appears in the top-level menu should be used to prepare one or more reference lists for retrieval.This option displays a second-level menu whose options are described here.

Video The BROWSE display includes a list of the applicable general selection criteria (see BROWSE/INITIALIZE), a list of the previously generated reference lists (see BROWSE/EXTRACT and BROWSE/COMBINE) and the BROWSE menu. If the reference list display does not fit into the space at the bottom of the display, an additional menu item is made available, SCROLL_LISTS, so that the reference lists may be scrolled.

Sequential The user selects one of the following BROWSE options by entering the first letter of the option name. The BROWSE/VIEW_LISTS option described below occurs only in the sequential mode operation and is functionally related to the BROWSE/SCROLL_LISTS option which occurs only in the video mode operation.

6.6.1 BROWSE/INITIALIZE

Users may select to restrict the publication year, the publication type or the entry cutoff date for the references contained in each reference list generated. This option allows these parameters to be entered. In addition, if any reference lists exist at the when this option is selected, they may be deleted. Entering only blanks and a RETURN key for any field means to use the default.

The publication year selection criteria may be given as a year or range of years. The earliest year of publication for a reference in the file is 1910. The input for this field must be in one of the following formats where YYYY and ZZZZ are the year.

ALL	`ALL`	no publication year selection (default)
YYYY	`1975`	a single year
YYYY–ZZZZ	`1975-1978`	a range of years
YYYY–	`1975-`	the year entered and all later years
–ZZZZ	`-1978`	all years up to and including the one entered

As mentioned previously, the references are categorized as either primary (journals) or secondary (reports, conferences, etc.). You may choose to restrict the retrieval to primary references only. Select either of the following:

`ALL`	no publication type selection (default)
`PRIMARY`	primary references only

Entering the first letter is sufficient.

If one wishes to perform an incremental retrieval, that is, one which will only include entries entered into the data base on or after some date, then supply a eight-digit entry cutoff date in the form year, month and day (YYYYMMDD). To get entries made on or after September 21, 1985, enter `19850921`. No selection on entry date is the default. There are no entries with an entry date prior to October, 1980 as that is the month when NNDC assumed responsibility for this data base. Any earlier date chosen will be disregarded and treated as if no entry date selection had been made. Entry `NONE` will result in no entry date selection criteria being applied.

Reference lists which have been created previously may be deleted. Select either `Yes` or `No` response to the `Delete Current Lists` prompt. In this way, unneeded reference lists may be deleted. One may also wish to avoid COMBINING lists created with inconsistent narrowing parameters such as one list including only the years 1980-1985 and another including only the years 1975-1976.

Video The prompt and the data entry field for each input item is presented in a single display. Each data entry field is initialized to its current value. Use the UP and DOWN arrows to move the cursor to the desired entry field. Use the space bar to toggle between values for the fields with only limited valid responses until the desired value is displayed. A RETURN will implement the new value. Otherwise, use the keyboard to enter a revised value. If an entry error is made, the line is flagged and the user is positioned to the same field to reenter. If the revised field data is valid, the cursor is positioned at the next field. To complete the option move to the last field and select either `DONE` or `QUIT`. As the user moves to a new data entry field, help information for that field will be displayed at the bottom of the screen.

Sequential The current values for each of the data fields are displayed, preceded by an identification number. At the prompt, fields can be selected for modification by entering one or more identification numbers separated by commas. Or one can enter `DONE` or `QUIT` to terminate the option, implementing or ignoring the changes, respectively. For the selected fields, the user is prompted one at a time to supply revised values. Use the space bar followed by a RETURN to toggle between values for the fields with only limited valid responses until the desired value is displayed. A RETURN will implement the new value. Otherwise, use the keyboard to enter a revised value, terminating with a RETURN. A question mark will display help for the data item and then return to the input prompt. When all requested fields have been processed, the current values are displayed again and the user is prompted for another selection of fields or to terminate with either `DONE` or `QUIT`.

6.6.2 BROWSE/EXTRACT

The creation of lists of reference keynumbers for user selected values of indexing variables is accomplished with this option. Selection for each of the indexing variable types is described below. In all cases, wildcards can be used in the parameter specification (see Section 6.5). In this case a menu of related valid indexing parameters is presented from which the user may choose. The wildcard parameter search may be initiated also by entering the word, SEARCH, or an asterisk (*). In this case, the user will be prompted to enter a wildcard parameter specification. The prompts will continue until a value is selected or a blank specification is entered.

After selecting a variable type and value, the reference list is generated. Upon completion of the list generation, the number of references in the list is displayed. Two confirmation windows pop up one after the other. The first window asks whether or not the reference list is to be displayed on the user's terminal. If the answer is YES, then the list can be examined in exactly the way described in the RETRIEVE/OUTPUT option. If NO, then the second confirmation window pops up. The user may choose whether the list should be kept for later output to terminal or disk from the RETRIEVE option or merged with another list in the BROWSE/COMBINE option or deleted. Further reference list specification requests can be made. Select DONE to terminate the option in video mode; enter a RETURN at the input prompt to terminate in sequential mode.

Nuclides and Targets — Enter a nuclide code for an isotope or a chemical symbol for an element.

Incident and Outgoing Particles — Enter a nuclide or a particle code.

Subject — Enter any valid subject code. The lists created for a subject code may be restricted by using one of the following variable types:

Measured quantity	Deduced quantity
Calculated quantity	Other quantity not included in other categories.

Reaction — Enter any reaction code or target-reaction combination.

Author — Enter an author code in any one of the three valid formats.

Key list — Enter a name by which this reference list is to be identified. The user is then prompted for valid keynumbers, one at a time. The entry of keynumbers is terminated by a blank entry.

Combine — Logically combine two reference lists. Option appears only if two or more reference lists have been previously created. See Section 6.6.3 for details.

List search — Searches references contained in a reference list for a user supplied text string. Option appears only if at least one reference list has been previously created. See Section 6.6.4 for details.

Video

The display includes a list of the current general selection criteria (see BROWSE/INITIALIZE), a list of the previously generated reference lists and a menu of indexing variables. Select an indexing variable from the menu and enter a parameter value at the prompt. If a wildcard value is entered, a new menu is generated from which you can select your parameter value. While the reference list is being generated, the prompt and response will blink. When generation is complete, the number of references found will be displayed. Next two successive confirmation windows, one for displaying the references in the list followed by one for saving the list are presented. After theses actions are completed, another selection can be made. Selection of `Done` will terminate the BROWSE/EXTRACT option. A sample video display follows.

Sequential At the prompt, select a retrieval variable type by entering the integer identification number to the left of the desired variable. A blank entered is equivalent to selecting the default indicated by an * to the left of the number. A question mark (?) will cause help information to be displayed. After selecting the variable type, the user is prompted to enter a value for that variable type. By entering a question mark (?), the details of parameter value specification for that type are given. If a wildcard value is entered, then a new menu is generated from which you can select your parameter value. To select the parameter value from this menu, you must enter the parameter at the prompt, exactly as it appears in the menu. When reference list generation is complete, the number of references found will be displayed. Then two successive confirmation prompts, one for displaying the references in the list followed by one for saving the list are presented. Then another selection can be made or the option terminated.

Reaction	`46TI(N,P)`	creates a list of all references to the ^{46}Ti(n,p) reaction,
Author	`SMITH,A.`	creates a list of references with A. Smith as an author,
Nuclide	`199PB`	creates a list of references for the nucleus ^{199}Pb.

BROWSE/EXTRACT Display in Video Environment

Nuclear Science References

BROWSE **EXTRACT**

Publication Years : 61-90 Type : All Entry Cutoff Date : None

NUCLIDE	**TARGET**	**INCIDENT PARTICLE**
OUTGOING PARTICLE	**SUBJECT**	**MEASURED QUANTITY**
DEDUCED QUANTITY	**CALCULATED QUANTITY**	**OTHER QUANTITY**
REACTION	**AUTHOR**	**KEY LIST**
COMBINE	**LIST SEARCH**	**DONE**

AUTHOR - An author of an NSR reference.

Number	Contents of Reference List	References	Retrieved
1	A:DUNFORD	4	None
2	A:SMITH,A.	150	None
3	N:239U	331	None
4	T:240PU	228	None
5	M:FISSION	1606	None
6	C:1.AND.2	1	None
7	L:4.AND.fission	29	None

6.6.3 BROWSE/COMBINE

This option should be used to logically combine reference lists previously created with the BROWSE/EXTRACT, the BROWSE/COMBINE or the BROWSE/SEARCH options. The combining operation is limited to the logical AND, OR, and AND NOT functions. For example, one can use this technique to select references where DUNFORD and A. SMITH are coauthors (see the preceding figure). Reference lists which are themselves logical combinations of other lists may be combined using this option to further refine the reference selection.

When the logical combination has been completed, if any references satisfy the logical expression, two confirmation windows pop up one after the other. The first window asks whether or not the reference list is to be displayed on the user's terminal. If the answer is YES, then the list can be examined in exactly the way described in the RETRIEVE/OUTPUT option. If NO, then the second confirmation window pops up. The user may choose whether the list should be kept for later output to terminal or disk from the RETRIEVE option or merged with another list in the BROWSE/COMBINE option or deleted.

The format for a logical expression is

list_number.operation.list_number

If reference lists 1 through 4 have been previously generated then the following are valid examples of logical expressions.

`3.OR.4`   `1.NOT.4`   `4.AND.2`

Video The video mode display for the BROWSE/COMBINE option includes a list of the current general selection criteria (see BROWSE/INITIALIZE), a list of the previously generated reference lists and an area for specifying the logical operation to be performed. An initial menu appears in this specification area which allows the user to create a new list, `CREATE_NEW_LIST`, ask for help, `HELP`, or terminate the option, `DONE`. When `CREATE_NEW_LIST` is selected, the menu is replaced by a logical operation specification form consisting of two input fields separated by a vertical menu of the possible logical operations. Enter the reference list number for the first list, select the logical operation from the vertical menu and lastly enter the second reference list number in the right entry field. The logical expression just created, replaces the entry form and the user may edit it and make any required changes. The preceding figure illustrates the logical expression entry sequence. A RETURN will cause the expression to be evaluated. If any references satisfy the logical expression, two successive confirmation windows will appear, one for displaying the references in the list followed by one for saving the list. The initial BROWSE/COMBINE menu returns. More combinations can be created. Selection of `Done` will terminate the option.

Sequential

When selecting the BROWSE/COMBINE option, a summary of the existing reference lists is displayed, followed by a menu containing `CREATE_NEW_LIST`, `VIEW LISTS`, `HELP` and `DONE`. To create a new reference list which is the logical combination of two existing lists, select `CREATE_NEW_LIST`. You will be then prompted for the number of the first reference list. This is followed by a menu to select the logical operation. Finally you will be asked to enter the second reference list number. The expression which you have created will be displayed and you will be asked to confirm that it is correct. When reference list generation is complete, the number of references found will be displayed. Then two successive confirmation prompts, one for displaying the references in the list followed by one for saving the list are presented. Then the next combination can be made. By entering a blank at this point, the BROWSE/COMBINE option is terminated.

BROWSE/COMBINE Sequence in Video Environment

```
CREATE_NEW_LIST   HELP   DONE
CREATE_NEW_LIST - Logically combine two reference lists into a new list.
```

```
Enter Second REFERENCE List Number
                 AND
          1   .  OR   .   2
                 NOT
```

```
COMBINE Expression is    1 . OR . 2
```

6.6.4 BROWSE/SEARCH

This option should be used to create a new list from lists previously created with the BROWSE/EXTRACT, the BROWSE/COMBINE or the BROWSE/SDEARCH options which contains only references with text which matches a user input character string.

When the text search operation has been completed, if any references satisfy the logical expression, two confirmation windows pop up one after the other. The first window asks whether or not the reference list is to be displayed on the user's terminal. If the answer is YES, then the list can be examined in exactly the way described in the RETRIEVE/OUTPUT option. If NO, then the second confirmation window pops up. The user may choose whether the list should be kept for later output to terminal or disk from the RETRIEVE option or merged with another list in the BROWSE/COMBINE option or deleted.

Video The video mode display for the BROWSE/SEARCH option includes a list of the current general selection criteria (see BROWSE/INITIALIZE), a list of the previously generated reference lists and an area for specifying the number of the list of references to be searched. When a reference list is selected the list selection window is replaced by a window in which the to text string is supplied. The text search is NOT case sensitive. A blank response to either of these queries will terminat the option without taking any action.

Sequential When selecting the BROWSE/COMBINE option, a summary of the existing reference lists is displayed. You will be then prompted for the number of list of the references to be searched. This is followed by a prompt to enter the search text. When reference list search is complete, the number of references found will be displayed. Then two successive confirmation prompts, one for displaying the references in the list followed by one for saving the list are presented. You will then be prompted to select another list. By entering a blank at this point, the BROWSE/SEARCH option is terminated.

BROWSE/SEARCH Sequence in Video Environment

```
Enter REFERENCE List Number – [2]
```

```
Search list **2** for string – [radioactivity]
```

6.6.5 BROWSE/RETRIEVE

This option is identical to the RETRIEVE option described in Section 6.7.

6.6.6 BROWSE/SCROLL_LISTS (*video mode only*)

When there are more reference lists than there is space for them in the lower part of the BROWSE option display, the menu contains a `Scroll_lists` item. This option will allow the user to scan the entire list of reference lists by scrolling. A menu appears at the bottom of the scrolling region. The direction of scrolling is chosen by selecting either `UP` or `Down`. When finished, select `DONE`.

6.6.7 BROWSE/VIEW_LISTS (*sequential mode only*)

In the sequential mode of operation where the list of reference lists is not a permanent feature of the display. When the `View_lists` option is selected the currently available reference list will presented a page at a time on the user's terminal.

6.6.8 BROWSE/SAVE

Reference lists which have been generated in the BROWSE/EXTRACT or /COMBINE options are deleted when the NSR retrieval program is terminated. These lists can be stored in a disk file so that they may be used in a later execution of the program. This option stores the selected reference lists in disk files. The user supplies the name only consisting of letters, numbers or underscores for each disk file. The full file specification is *user_supplied_name*.`NSR_SAVE`, and is stored in the user assigned disk storage area. **NOTE!!** This does NOT produce a disk file with the NSR entries in it, but only a file with a list of entries. See RETRIEVE/OUTPUT for information on retrieving the NSR entries.

Video When the BROWSE/SAVE menu option has been selected, a prompt appears requesting entry of the number of the reference list to be saved. A prompt requesting a name for the saved list file follows immediately. After the name has been entered, the file is created and the prompt for the number of the next list to be saved appears. Either enter another list number or a RETURN with no number to terminate the option

Sequential The sequential mode operation is identical to the video mode operation.

6.6.9 BROWSE/GET

Reference lists which have been stored on disk using the BROWSE/SAVE option can be restored to the currently active reference list by using the BROWSE/GET option. A list of all stored reference lists is displayed, giving the name of the file and the retrieval parameter used to create the reference list contained in the file. The user selects lists to be restored by entering the list names one at a time.

Video

When this option is selected, the list of available stored reference lists is displayed and a prompt appears requesting entry of a stored file name. Upon entry of one of the names, the reference list will be restored to the currently active reference lists and the prompt will reappear. At this point, another saved file can be selected or the option terminated with a RETURN without entering a file name.

Sequential

This option operates identically in sequential and video mode except that the list of available stored reference lists is displayed only immediately after the option is selected.

6.7 RETRIEVE

The top-level RETRIEVE option is used to retrieve one or more list of references which have been previously created in the BROWSE option. Unless at least one such a list has been created, the only output option is the RETRIEVE/SINGLE option.

Video The RETRIEVE display includes a list of the current output file and format (see NEW_FILE and FORMAT) a list of the previously generated reference lists (see BROWSE/EXTRACT and /COMBINE) and the RETRIEVE menu. If the reference list display does not fit into the space at the bottom of the display, an additional menu item is made available, SCROLL_LISTS, so that the reference lists may be scrolled. Unless at least one reference list has been created, the only output option is the RETRIEVE/SINGLE option.

Sequential The user selects a RETRIEVE option by entering the first letter of the option name. The RETRIEVE/VIEW_LISTS option described below occurs only in the sequential mode operation and is functionally equivalent to the RETRIEVE/SCROLL_LISTS option which occurs only in the video mode operation. The RETRIEVE/OUTPUT in this menu can be used to output previously generated reference lists. Either enter an O at the prompt or the number of the reference list to be retrieved. Unless at least one reference list has been created, the only output option is the RETRIEVE/SINGLE option.

6.7.1 RETRIEVE/OUTPUT

This option will output NSR entries corresponding to one of the reference lists which have been created previously. If there are no reference lists, then this option will not appear on the menu. If only one reference list has been created in the BROWSE option, the program will immediately retrieve and display the contents of the list. Otherwise the user will be prompted to select the list to be displayed. By entering ALL, all references list can be retrieved one at a time. The output will go to either the user's terminal or to a disk file in the previously selected format.

Video In the video operation mode, when this option is selected from the menu, a prompt appears asking for the number of the reference list to be retrieved. Select a list and enter the number which corresponds to the selected reference list. If there is only one reference list, then the program immediatThe entry for each reference in the selected list will be output in the selected format. Output to disk proceeds without further interaction with the user.

When output is to the user's terminal, the entry for each reference appears as a single display in the selected format. The retrieval criteria appear at the top of the display. A scrolling region for displaying an NSR entry appears in the middle of the screen with the keynumber as the border label.

A menu appears at the bottom of the display. The menu items have the following meaning.

`FORWARD`	to display next window for an entry which is too large for full display,
`BACKWARD`	to display previous window for an entry which is too large for full display,
`START`	to display first window for an entry which is too large for full display,
`END`	to display last window for an entry which is too large for full display,
`NEXT REF`	to go to the next entry,
`PRIOR REF`	to go to the previous entry,
`DONE`	to terminate display of current reference list,
`QUIT`	to terminate display of all reference lists,

The first and last entries in a list will be flagged on the scrolling region border. The following figure illustrates the RETRIEVE/OUTPUT option and the display of an entry in user format.

Sequential In the sequential mode, when this option is selected, a prompt appears and the user should input the number or the reference list to be retrieved. If the output is going to a disk file, it proceeds without any user interaction. If the output is going to the user's terminal, the entries are then displayed one at a time. The display is nearly identical to that of the video mode. The menu items are displayed at the bottom of the screen are are identical in both modes. Select a menu item by entering the first character of the item name.

6.7.2 RETRIEVE/SINGLE_REF

It is possible to retrieve references one at a time without creating a reference list with the BROWSE option. If the keynumbers for the required references are known, then use this option. The user is prompted for a reference keynumber (see Section 6.1 for format). Any global selection criteria set in the BROWSE/INITIALIZE option are ignored. For valid keynumbers, the reference entry is displayed as described for the RETRIEVE/OUTPUT option. Entry of a blank keynumber terminates the option. If the keynumber entered is invalid, a message is displayed and the option terminated.

6.7.3 RETRIEVE/SEND

Use this option to download the data file containing the current retrieval. This option appears in the RETRIEVE menu only when a file of retrieved data exists. This option is identical to the FILE/SEND option described in Section 15.1.3.

6.7.4 RETRIEVE/NEW_FILE

Use this option to change where the retrieval output will go. This option is identical to the NEW_FILE option described in Section 6.9.

RETRIEVE/OUTPUT Display in Video Mode

Nuclear Science References

RETRIEVE **OUTPUT**

Format : Increasing User   File : User Terminal

OUTPUT **SINGLE_REF** **NEW_FILE** **FORMAT** **YEAR_ORDER** **DONE**

Enter number of list to be retrieved - 1

Number	Contents of Reference List	References	Retrieved
1	A:DUNFORD	4	None
2	A:SMITH,A.	150	None
3	N:239U	331	None
4	T:240PU	228	None
5	M:FISSION	1606	None
6	C:1.AND.2	1	None
7	L:4.AND.fission	29	None

Video Mode Output in User Format

Nuclear Science References

Reference List Title : **A DUNFORD**

Publication Years : **61-90**   Type : **All**   Entry Cutoff Date : **None**

67LI11

Phys.Rev. 162, 107 (1967)
D.Lister, A.B.Smith, C.Dunford
Fast-Neutron Scattering from the 182, 184, and 186 Isotopes of
Tungsten

<KEYWORDS>NUCLEAR STRUCTURE 186W,182W,184W; measured
not abstracted; deduced nuclear properties.

NEXT REF **PRIOR REF** **QUIT**

NEXT REF - Display the next reference in the list.

6.7.5 RETRIEVE/FORMAT

Use this option to change the format of the retrieval output. This option is identical to the FORMAT option described in Section 6.10.

6.7.6 RETRIEVE/YEAR_ORDER

Normally the NSR entries are retrieved in order of increasing year of publication, that is earliest years first. If the user wishes to change the currently selected output order, this option should be used. See Section 6.8 for details.

6.7.7 RETRIEVE/SCROLL_LISTS

This option is identical to BROWSE/SCROLL_LISTS and operates in video mode only.

6.7.8 RETRIEVE/VIEW_LISTS

This option is identical to BROWSE/VIEW_LISTS and operates in sequential; mode only.

6.8 YEAR_ORDER

Normally the NSR entries are retrieved in order of increasing year of publication, that is earliest years first. If the user wishes to change the currently selected output order, this option should be used.

Video A two item menu appears withe the currently selected order highlighted. Use the cursor movement keys and select the desired output order. When the selection is complete the option terminates and the default output format in the display is updated.

Sequential In the sequential operating mode, the selection of this option will cause the currently selected output order to be changed to the alternate order and a message is displayed indicating the new output order.

6.9 NEW_FILE

The output from the retrieval can be displayed on the user's terminal or stored in a disk file. This option can be used to change the currently selected output destination. The default destination is the user's terminal. If you wish to direct output to a disk file, you MUST use this option to supply a name for the file before proceding with the retrieval. The disk storage of output files and their naming conventions are discussed in Section 3.4. The user's terminal can be indicated by specifying a file `TT:` or `TTY:`.

When this option is selected, a prompt appears and the user enters a new file specification. Entering a RETURN without a file specification is interpreted as selecting the user terminal for output. The video and sequential mode operation is the same.

6.10 FORMAT

The output can be generated in one of three formats. This option permits the selection of the output format from the three choices. The default selection is **User** format.

User Format

The **User** format is an expanded human-readable format in which the special symbols, Greek letters and super- and subscripts have been converted to one or more standard ASCII characters. The width of a line of output is 80 characters. The HISTORY, CODEN (unless REFERENCE, AUTHOR and TITLE are missing) and the SELECTRS are not displayed. The previous figure gives an example of 80- character line user format.

Wide User Format

The **Wide User** format is identical to the **User** format except that it is designed for 132 character line output. For terminal output, unless the user has specified that his output device is 132 character capable(see Section **??**), the output will revert to standard **User** format.

Exchange Format

The **Exchange** format is illustrated in Section 6.1. This is the internal format for an NSR entry. It consists of 80-character records with special characters, Greek letters and super- and subscripts unexpanded. All of the entry fields are displayed.

HTML Format

The **HTML** format produces an output file which can be viewed in a WEB browser such as NETSCAPE. All internal representations of special characters, Greek letters and super- and subscripts are converted so as to display properly by the browser.

Video In the video mode, a menu of the three format options is displayed. Upon selection of a format, the option terminates and the file specification in the screen display is updated.

Sequential The new output format is selected by entering the first character of the format name at the prompt. Entry of a RETURN will select the default format, the **User** format.