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Pedersen, Birgit

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Information Retrieval from INIS Magnetic Tapes

by

Birgit Pedersen

A. E. K. Risø

Title and author(s)	Date August 1973
Information Retrieval from INIS Magnetic Tapes by Birgit Pedersen	Department or group Library
	Group's own registration number(s)
22 pages + tables + illustrations	

Abstract

　　　　For a trial period of about one year, beginning August 1973, information retrieval from the magnetic tapes of the International Nuclear Information System (INIS) is offered to the scientists of the Danish Atomic Energy Commission Research Establishment. Searches can be based either on bibliographic items such as author, title, subject category, language, or on the information content represented by descriptors, or on a combination of the two. The actual searches are carried out by I/S Datacentralen, Copenhagen, who have developed computer programs, called TELETEXT, for SDI-searches. Instructions are given on how to construct search profiles.

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What is INIS?

INIS - the International Nuclear Information System - has been established to serve the information needs of the world's nuclear scientists and technologists. Records of newly published literature in the nuclear field are prepared for input in national and regional centres. These records are sent to the International Atomic Energy Agency (IAEA) in Vienna, where they are processed by an electronic computer and merged to create a master file. It is expected that about 80,000 items will be recorded every year.

The INIS file contains a detailed bibliographic description of each piece of literature and a set of keywords (in the following called descriptors) which indicate the subject content of the document.

The library of the Danish Atomic Energy Commission subscribes to the printed version of the system, called INIS Atomindex. However, the INIS Magnetic Tapes are the most important product of the system, as these magnetic tapes enable scientists to have specific literature searches made in a quick and easy way. The library has therefore decided to run the INIS Magnetic Tapes for a trial period of about one year. Scientists at Risø are thus offered the possibility of having literature searches made every month on the newest INIS tapes received from Vienna. Searches can be based either on bibliographic items such as author or title or on the information content represented by the descriptors, or on a combination of the two. The answers will be delivered in the form of reference lists (see Appendix IV). The actual searches will be carried out by I/S Datacentralen, who have developed computer programs for SDI[*]-searches. These programs, called TELETEXT, have for some years been used for information retrieval from Chemical Titles and Chemical Abstracts Condensates tapes, and will now be used for retrieval from the INIS Magnetic Tapes, too.

Scientists who have literature searches made will be asked to give their comments upon the search result.

The amount of information describing the individual references is illustrated below (figs. 1a and 1b):

---

[*] SDI = Selective Dissemination of Information

046511/E52/J
GRISON, G.
/ THE CREATION OF A COMMUNITY SYSTEM OF
* RADIOACTIVE WASTE DUMPS.
EUROPEAN COMMUNITIES; FUEL REPROCESSING
PLANTS; RADIOACTIVE WASTE DISPOSAL; SITE
SELECTION; WASTE STORAGE;
BT: INTERNATIONAL ORGANIZATIONS; WASTE
DISPOSAL; WASTE MANAGEMENT; E52.
EURO-SPECTRA. (SEP 1971). V.10(3) p. 91-94.

Bibliographic information

Descriptors

Title

Author

Record number

Primary subject category

Type of literature (Literary indicator)

Fig. 1a.

019860/E23/B
PICKMAN, D. O.
ED: INSTITUTT FOR ATOMENERGI, KJELLER (NORWAY).
/ PROPERTIES OF ZIRCALOY CLADDING.
* ANISOTROPY; ANNEALING; BRITTLENESS; BWR TYPE RE-
ACTORS; CLADDING; CREEP; DUCTILITY; ELONGATION; FAST
NEUTRONS; FATIGUE; FUEL CANS; PWR TYPE REACTORS;
RADIATION EFFECTS; TEMPERATURE DEPENDENCE; TEX-
TURE; YIELD STRENGTH; ZIRCONIUM BASE ALLOYS; ZIR-
CONIUM HYDRIDES;
BT: BARYONS; DEPOSITION; ELEMENTARY PARTICLES; FER-
MIONS; HADRONS; HEAT TREATMENTS; HYDRIDES; MECHAN-
ICAL PROPERTIES; NEUTRONS; NUCLEONS; REACTORS;
SURFACE COATING; TENSILE PROPERTIES; TRANSITION
ELEMENT COMPOUNDS; WATER COOLED REACTORS; WATER
MODERATED REACTORS; ZIRCONIUM ALLOYS; ZIRCONIUM
COMPOUNDS; E23; B26; B22.
ADVANCED COURSE ON LIMITING ASPECTS OF FUEL ELEMENT
PERFORMANCE IN WATER COOLED POWER REACTORS. OR-
GANISED BY THE NETHERLANDS-NORWEGIAN REACTOR SCHOOL
AT INSTITUTT FOR ATOMENERGI, NORWAY, 24TH AUGUST-28TH
AUGUST 1970. KJELLER, NORWAY. INSTITUTT FOR ATOMENERGI.
1971. p. 111-164. REVISED VERSION TO BE PUBLISHED IN V. 21
OF NUCLEAR ENGINEERING AND DESIGN.

Primary and secondary subject categories

Editor
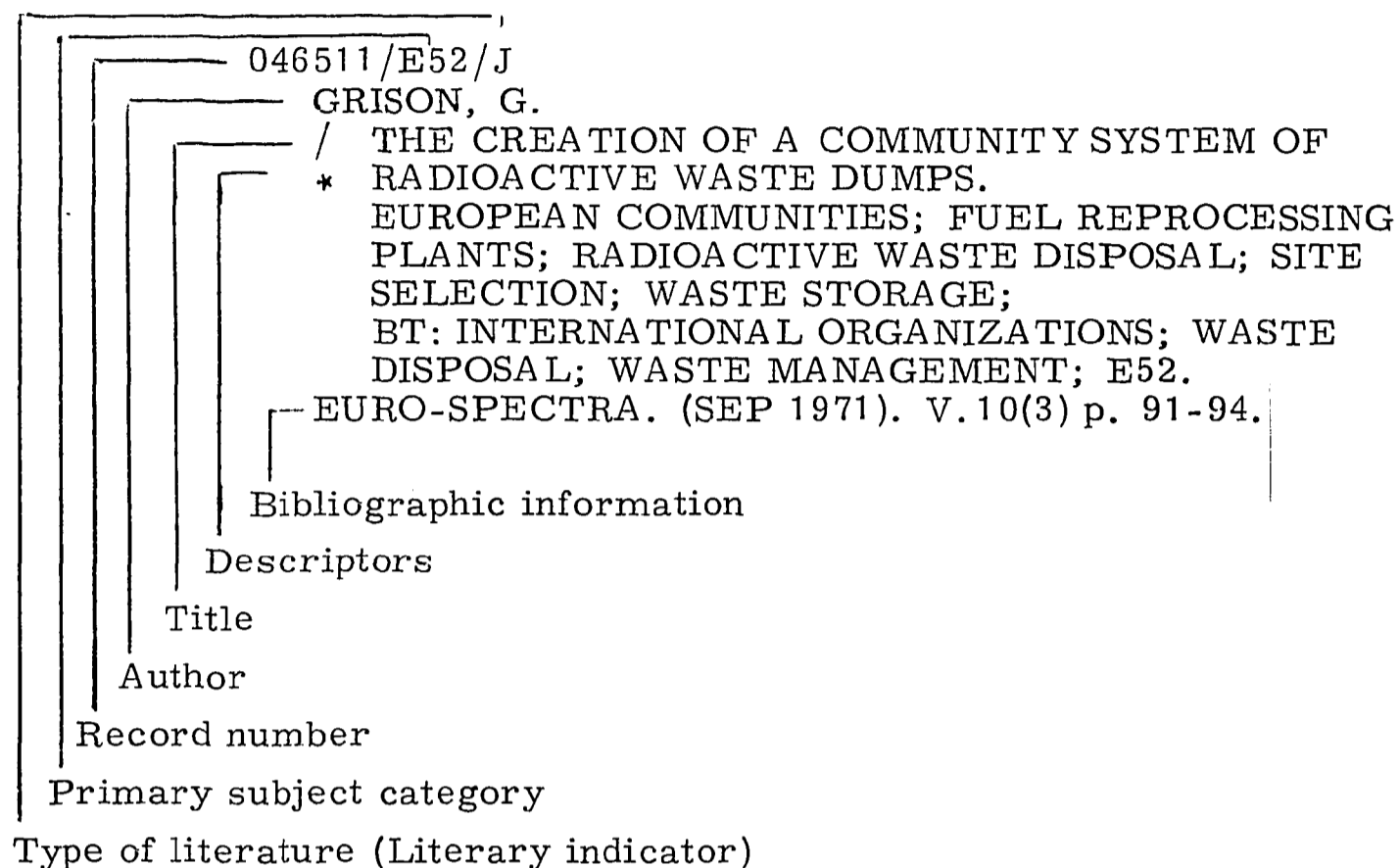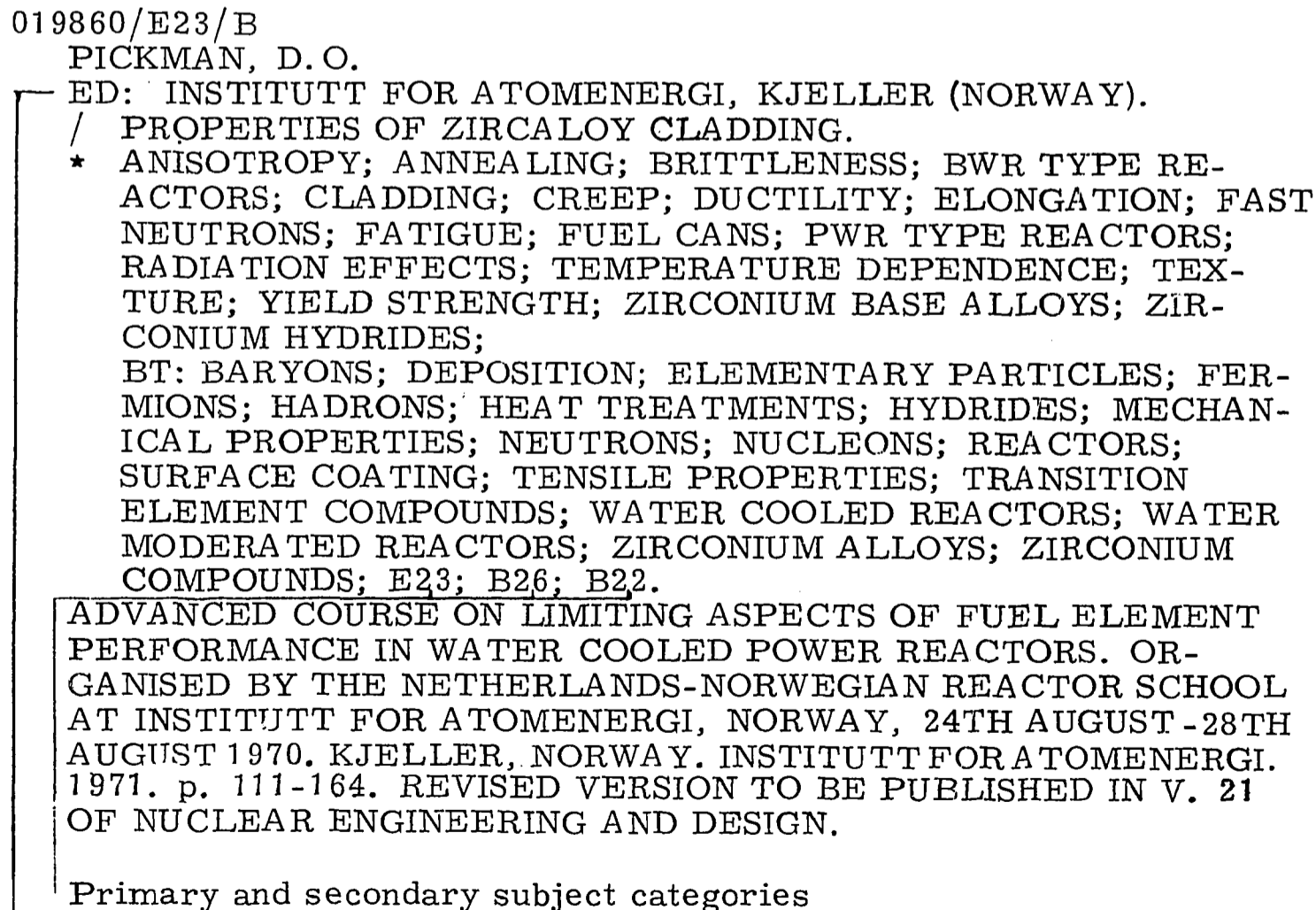
Fig. 1b.

Construction of a Search Profile

The user may construct the search profile himself, but normally the best retrieval result will be achieved when the profile is formulated jointly by the user as the subject specialist and the librarian having the best knowledge of the construction of the INIS system and of the search technique.

The actual search profile is formulated by means of a query form, p. 4. In the following the construction of a search profile is illustrated by treating each of the columns in the query form separately.

LIBRARY OF
THE DANISH ATOMIC ENERGY COMMISSION
Riso, DK 4000 Roskilde, Denmark

TELETEXT/BATCH SEARCH QUERY

User return address	Date	Reserved computer center Job no: 16 10 003
		Made ready to process by:

Identification card

Query no.	★ Database	Update code	Printout			Weight limit	★ IN = INTERNATIONAL NUCLEAR INFORMATION SYSTEM
			Term lm	Skip PQRU	0 5 / In-dex		
1 4	6 7	8	9	10 11	12	13	14 17	
	I N						

User printout heading (max. 43 char.)		Printout limits
		Max. Factor
18 60	72 75	77 80

Term cards (col. 1-4 duplicate query no.)

A B C . . N	R S A D . .	1 ←→ 2 ←→ 3 ←→ 4 ←→	Term weight	Search term (character string to be matched text in searched data base, max. 60 character)	0 = add. 1 = repl. 2 = del.
5	6	7	8 10	11 70	71

Instructions at back

☐ Continued   ☐ Continuation of query no.: _____

INSTRUCTIONS   **TELETEXT/BATCH SEARCH QUERY**

The short instructions below should help new users in filling in the query form and understanding the search process.

Identification card	This is the header card of each query. Normally it is not filled in by the user.
Col. 1-4, Query no.	Must be filled in when the form is used for updating an existing query. New queries are given an individual number by the library.
Col. 8, Update code	0: for a new query.
	1: when replacing an older query with the same query no.
	2: when deleting a query (form need then only be filled in with query no.).
	3: for a new query which is to be run only once.
	9: when the form is used for modifying an existing query.
Col. 9, Term List	0: the search terms are listed on the print-out.
	1: the search terms are not listed. In connection with changes in the profile the user is supplied with a seperate term list.
Col. 10-12, Printout code	Blank: All information about the individual ref. contained on the tape is printed out.
	P in col. 10 or 11: corporate author is not printed out.
	Q in col. 10 or 11: the title of the ref. is not printed out.
	R in col. 10 or 11: the descriptors are not printed out.
	U in col. 10 or 11: computer-assigned descriptors are not printed out.
	S in col. 12 : only identification and weight of the ref. is printed out.
Col. 13, Author Index	0: no author index is printed.
	1: the list of answers is followed by an alphabetic author index.
Col. 14-17, Weight limit	Optional positive number. Hits with total weight lower than the limit are not printed out.
Col. 18-60, Personal user printout heading	User-identification.
Col. 72-75 and 77-80, Printouts limits	Optional number with up to 4 digits. Example: max = 20, factor = 10 means that the first 20 hits will be printed out in full text. Weight and abstract no. of the remaining will be printed (3 per line) until a maximum of 20 x 10 = 200 hits (incl. the first 20).

Term cards

Col. 5, Logical group	A, B, C ....or N. Hits will contain at least one A-term and one B-term and one C-term etc.,but none of the N-terms.

Col. 6, Search code

Code	Searched element
A	Author
C	Reference number
D	Primary subject category
E	Type of record
P	Corporate author
Q	Title, literary indicator and language is searched
R	Descriptors and all subject categories are searched
S (=Q+R)	Title, literary indicator, language, descriptors and subject cat. are searched
T	Same elements as search code S, but with cumulative weight for the terms.

Col. 7, Truncation	◄─┤ 1 = Retrieves the term preceded by any combination of characters.
	├─► 2 = Retrieves the term followed by any combination of characters.
	├─┤ 3 = Retrieves the term only if bounded by blank spaces, or punctuation.
	◄─► 4 = Retrieves the term within any string of characters.
Col. 8-10, Term Weight	Optional number between -99 and 999. Blank is read as 0.
Col. 11-70, Term	The user may choose any word, word-stem or string of words as search term.
Col. 71, Term Updating	0: the term is added.
	1: changes in col. 5-10; the term as such remains unchanged.
	2: the term is deleted.

Term Cards

From the user's point of view the term cards are the most important part of the query form, and we shall therefore treat these first.

Col. 5   Search profiles are constructed according to the so-called AND/OR/NOT logic which requires that a reference to be retrieved must contain at least one term from each of the groups (A, B, C, etc.) in the profile, but not the terms which the user may have placed in a NOT group. It should be indicated whether a search term belongs to an A group, a B group ..., or a NOT group, by writing A , B ..., N in column 5. The simplest form of a profile consists of one group, A, containing one search term (ex. 1):

Ex 1

Term cards (col. 1-4 duplicate query no.)

A B C . . N	H S A D . .	1 2 3 4	Term weight	Search term (character string to be matched text in searched data base, max. 60 character)	0 add 1 repl. 2 del.
A				RESEARCH REACTORS	

This profile retrieves all references about research reactors.

Normally a query consisting of only one group, A, retrieves too many references. The search may therefore be restricted to certain aspects in connection with the term(s) in the A group. If, e. g., you only want to receive references concerning irradiation tests made in a research reactor, you add a B group consisting of for instance the term IRRADIATION PROCEDURES. You may have as many search terms in each group as you want. The computer will "read" an OR between each term within a group.

Ex. 2

Term cards (col. 1-4 duplicate query no.)

A B C . . N	R S A D . .	1 2 3 4	Term weight	Search term (character string to be matched text in searched data base, max. 60 character)	0 add 1 repl. 2 del.
A				RESEARCH REACTORS	
B				IRRADIATION PROCEDURES	

Another way of reducing the number of unwanted answers is to insert a NOT parameter, which will exclude all references containing the NOT terms (ex. 3):

Ex. 3

Term cards (col. 1-4 duplicate query no.)

A B C . . N	R S A D . .	1 2 3 4	Term weight	Search term (character string to be matched text in searched data base, max. 60 character)	0 add 1 repl 2 del.
5	6	7	8 10	11	70 71
A				RESEARCH REACTORS	
B				IRRADIATION PROCEDURES	
N				GAMMA RADIATION	

Col. 6   In this column you indicate in which part of the reference the term(s) should be searched for:

A   is used for   personal author and personal editor

D   -   -   -   primary subject category

E   -   -   -   type of record

P   -   -   -   corporate author, corporate editor, patent assignee

Q   -   -   -   title, literary indicator, language

R   -   -   -   descriptors and all subject categories

S   -   -   -   title, literary indicator, language, descriptors, and all subject categories

T   -   -   like search code S, but with cumulative weight for the individual terms.

(More information about search terms is given in the description of col. 11-70).

Examples 4 and 5 illustrate that various types of search terms can be combined in one search profile:

Ex. 4

Term cards (col. 1-4 duplicate query no.)

A B C . . N	R S A D . .	1 2 3 4	Term weight	Search term (character string to be matched text in searched data base, max. 60 character)	0=add. 1=repl. 2=del.
5	6	7	8 10	11	70 71
A	A			EKSTROEM, C.	
B	R			NUCLEAR MAGNETIC MOMENTS	
C	R			ERBIUM 161	
C	R			ERBIUM 163	

This profile retrieves all references concerning nuclear magnetic moments of ^{161}Er and ^{163}Er written by C. Ekström.

Ex. 5

Term cards (col. 1-4 duplicate query no.)

ABC..N	RSAD..	1 ← / 2 → / 3 ⊢ / 4 ↔	Term weight	Search term (character string to be matched text in searched data base, max. 60 character)	not ⋯
A	P			COMMISSION OF EUROPEAN COMMUNITIES	
B	R			RADIOACTIVE WASTE PROCESSING	
B	R			RADIOACTIVE WASTE DISPOSAL	
N	Q			(IN FRENCH)	

According to ex. 6 all literature concerning processing and disposal of radioactive wastes, published by the European Communities and not written in French, will be retrieved.

Col. 7   Search terms can be words, word stems, or phrases.

Code 1 (←)   retrieves the term preceded by any combination of characters
-    2 (→)   -   -   -   followed   - -   -   -   -
-    3 (⊢)   -   -   -   only if it is bounded by blank spaces or punctuation
-    4 (↔)   -   -   -   within any string of characters

Codes 1 and 4 must not be used when authors are searched for.

Ex. 6

Term cards (col. 1-4 duplicate query no.)

ABC..N	RSAD..	1 ← / 2 → / 3 ⊢ / 4 ↔	Term weight	Search term (character string to be)		
A	S	1		ISOTOPE	retrieves	ISOTOPE
					-	RADIOISOTOPE
A	S	2		ISOTOPE	-	ISOTOPE
					-	ISOTOPES
A	S	3		ISOTOPE	-	ISOTOPE
A	S	4		ISOTOPE	-	ISOTOPE
					-	RADIOISOTOPE
					-	ISOTOPES
					-	RADIOISOTOPES

Ex. 7

A	S	4		ISOTOP	

retrieves also ISOTOP<u>IC</u>

Col. 8-10

These columns are only used in connection with weighted profiles. The computer will calculate the total weight of a reference by cumulating the weight of the individual search terms. The computer sorts the references according to their total weight, and the weight can therefore be used as a means of sorting the answers. If a weight limit is indicated in column 14-17 of the identification card, only references with a total of $\geq$ the weight limit will be printed out.

Ex. 8

Identification card

Query no.				Database★		Update code	Printout					Weight limit		★ IN = INTERNATIONAL NUCLEAR INFORMATION SYSTEM		
							Term lmt	Skip PQRU	0 5	In-dex						
1			4	6	7	8	9	10 11	12	13	14		17			
				I N									100			

18	User printout heading (max. 43 char.)	60	Printout limits			
			Max. 72	75	Factor 77	80

Term cards (col. 1-4 duplicate query no.)

A B C . . N	R S A D . .	1 ←┤ 2 ├→ 3 ├─ 4 ←┤	Term weight	Search term (character string to be matched text in searched data base, max. 60 character)	0=add. 1=repl. 2=del.
5	6	7	8 10	11 70	71
A	S	3	30	PRESTRESSED CONCRETE	
B	S	3	30	PRESSURE VESSELS	
C	S	3	40	SHEAR PROPERTIES	
C	S	3	40	SHEAR	
C	S	3	40	FAILURES	
C	S	3	30	STRESS ANALYSIS	
C	S	3	10	SLABS	
C	S	3	10	PLATES	

Since this profile was given a weight limit of 100, and since at least one search term from each group (A, B, and C) should be present, only documents indexed with (PRESSURE VESSELS) and (PRESTRESSED CONCRETE) and either (SHEAR PROPERTIES) or (SHEAR) or (FAILURES) or (STRESS ANALYSIS and (SLABS or PLATES)) will be printed out.

Ex. 9 is a reference printed out as an answer to the profile above.

Ex. 9

034086/B24/R   WEIGHT=0220
    KARLSSON, B.I.
    ILLINOIS UNIV., URBANA (USA)
    / SHEAR STRENGTH OF END SLABS WITH AND WITHOUT
      PENETRATIONS IN PRESTRESSED CONCRETE REACTOR
      VESSELS. (THESIS)
    * DEFORMATION: EQUATIONS; FAILURES; OPENINGS;
      PRESSURE DEPENDENCE; PRESSURE VESSELS; PRESTRESSED
      CONCRETE; REACTORS; SHEAR PROPERTIES; STRESS ANALYSIS;
      TESTING;
      BT: BUILDING MATERIALS; CONCRETES; CONTAINERS;
      MECHANICAL PROPERTIES. B24
    1971. 388 P. UNIVERSITY MICROFILMS ORDER NO. 72-12, 237

If in col. 6 the code T had been used instead of code S (i.e. cumulative weight instead of non-cumulative), references like the following would have been retrieved (the weight of STRESS ANALYSIS has been counted twice):

Ex. 10

043752/E22/J   WEIGHT=120
    OHTANI, NOBUO   NAGATO, KOTARO
    / STRESS ANALYSIS FOR PCPV LINERS. (IN JAPANESE)
    * ASYMMETRY; COMPUTER CALCULATIONS; FOURIER ANALYSIS;
      MATRICES; MATRIX ELEMENTS; OPENINGS; PRESSURE VESSELS;
      PRESTRESSED CONCRETE; STRAINS; STRESS ANALYSIS; SYMMETRY;
      TRANSFER FUNCTIONS;
      BT: BUILDING MATERIALS; CONCRETES; CONTAINERS; FUNCTIONS;
      E22
    FAPIG (TOKYO). (NOV. 71)(NO. 63). P. 152-155.

<u>Col. 11-70</u>

In these columns you write the actual search terms. As is shown under col. 6 you can search on almost any information in a reference. A search term may consist of up to 60 characters, including blanks, and may be:

a personal <u>author</u>   (A in col. 6). Comprises also personal editor(s). Author/editor names are written in inverted form, e. g. OLESEN, H. P. <u>ED</u>: should be inserted before names of editors.

a corporate <u>author</u>   (P in col. 6). Comprises also corporate editor(s) and patent assignee; might for example be BROOKHAVEN NATIONAL LAB., UPTON, N. Y. (USA). Consult the library for the authorized version of names of the organizations.

a <u>descriptor</u>   (R, S, or T in col. 6). Every piece of literature has been assigned about 20 descriptors, of which on an average 10 are computer assigned, as they are broader terms to the descriptors assigned by the indexer. The descriptors are selected from a controlled vocabulary, the INIS Thesaurus, which contains about 12, 000 descriptors related to each other by means of the expressions Broader Term (BT), Narrower Term (NT), Related Term (RT), Use (USE), Used For (UF). (A page from the thesaurus is shown in Appendix I).

If for instance the descriptor REACTOR ACCIDENTS is used as a search term, documents indexed with this descriptor will be printed out, as well as documents indexed with the NT descriptors EXCURSIONS, LOSS OF COOLANT, MAXIMUM CREDIBLE ACCIDENT ... , as REACTOR ACCIDENTS is a broader term to EXCURSIONS, LOSS OF COOLANT...

When using a descriptor as a search term, you write an <u>R</u> in col. 6. (For the use of <u>S</u> and <u>T</u> , see the last paragraph of the description of <u>title word</u>).

The descriptor part of a reference is searched as a free-text field, i. e. if you use the descriptor WATER as a search term, you will also have references indexed with WATER MODERATED REACTORS, WATER MODERATOR, WATER POLLUTION, etc. If you only want documents indexed with WATER, you must add a semicolon after the search term, i. e. <u>WATER;</u>

an <u>editor</u>   See "personal author" and "corporate author".

a language indication (Q in col. 6). If a document is written in a language
other than English, a language indication is given in parentheses right
after the title, e. g. (IN DANISH). This information can be used as a
search term. You can thus ask for literature on a certain subject and
state that it should (or should not) be in, for example, French. (see ex. 5).

a literary indicator (Q in col. 6). If you are especially interested (or perhaps
not interested) in one of the following kinds of literature, you may use
the following abbreviations (with the parentheses) as search terms:

(ABSTRACT) for literature published only as an abstract, short
communication or letter-to-the-editor.

(BIBLIOG.) for bibliographies or review articles with an extensive
bibliography.

(CONF.) for conference papers .

(DICT.) for encyclopedias, dictionaries, and glossaries.

(N. DATA) for literature which is mainly a presentation of nu-
merical data.

(PR. REPT.) for progress reports.

(STAND.) for literature whose main topic is the definition of a
standard or a specification.

(THESIS) for theses and dissertations.

an organization. See "corporate author".

a patent assignee . See "corporate author".

a subject category (D or R in col. 6). Every piece of literature has been
assigned a primary subject category, and some also secondary subject
categories. If you are only interested in literature which has been as-
signed a certain subject category as primary subject category, you use
this subject category as a search term, and D is written in col. 6. If
it is of no importance to you whether the subject category of interest
has been assigned as a primary or a secondary subject category, you
write R in col. 6.

INIS subject categories are listed in Appendix II. Consult the library
for a more detailed definition of the subject categories or consult the
report IAEA-INIS-3 (newest ed.).

a <u>title word</u>   (Q, S, or T in col. 6). It is the basic idea of INIS that information retrieval should be made by means of the descriptors assigned to every piece of literature. However, the best retrieval result is often obtained when descriptor search is combined with search on titles. This is due to the fact that even though the INIS thesaurus contains about 12,000 descriptors, it is not always possible to index a document as specifically as desirable. As the title of a document may contain a very specific expression for the idea of the document, retrieval from this part of the references is often successful.
Every word or string of words in a title can be used as a search term.

When a term is to be searched for only in the titles, Q is written in col. 6. If the same term is also to be searched for in the descriptor part of the references, S is written in col. 6. - T is only used when the so-called weighting function is used in the search profile (see description of col. 8-10).

a letter indicating <u>type of record</u>   (E in col. 6). A search term can be the
letter   B for books
    C -   collections
    D -   photographs, engineering drawings
    F -   moving-picture films, slides, film strips
    G -   maps, atlases
    H -   sound recordings
    J -   journal articles
    P -   patents
    R -   reports
    T -   computer media, i.e. punched cards, paper tapes, magnetic tapes

<u>Col. 71</u>   This column is used for modifications and corrections of existing profiles. Consult the back of the query form for instructions p. 4a.

Identification Card

Normally the library and not the individual user will fill in this card. An exception is the weight limit (col. 14-17), which the user fills in himself (see description of col. 8-10 of the term cards).

The use of the different columns of the identification cards is described on the back of the query form (p. 4a).

For information about the build-up of the INIS system you may consult the INIS Reference Series presented in Appendix III.

REACTION HEAT
- NH combustion heat
- NH dissociation heat
- NH formation heat

REACTION KINETICS [437; 1,562]
- UF -activity coefficient
- UF -reaction mechanisms
- UF -reaction rate
- SF -mechanisms
- BTI kinetics
- NH biochemical reaction kinetics
- NH chemical reaction kinetics
- NTI nuclear reaction kinetics
- RT activation energy
- RT arrhenius equation
- RT dissociation
- RT equilibrium

-reaction mechanisms
- USE reaction kinetics

-reaction rate
- USE reaction kinetics

REACTIVITY [269; 270]
- NTI reactivity insertions
- RT inhour equation
- RT pile oscillation techniques
- RT pile replacement techniques
- RT poisoning
- RT reactivity coefficients
- RT reactivity meters
- RT reactivity units
- RT reactivity worths
- RT reactor kinetics
- RT rod drop method

REACTIVITY COEFFICIENTS [42; 180]
- NTI danger coefficient
- NTI doppler coefficient
- NTI power coefficient
- NH pressure coefficient
- NTI temperature coefficient
- NTI void coefficient
- RT reactivity
- RT reactivity insertions
- RT reactor kinetics

REACTIVITY INSERTIONS [1; 1]
- BTI reactivity
- RT pulsed reactors
- RT reactivity coefficients
- RT reactivity units
- RT reactivity worths
- RT reactor kinetics

REACTIVITY METERS [11; 11]
- RT reactivity

REACTIVITY UNITS [0; 1]
- NTI dollars
- NTI inhours
- RT reactivity
- RT reactivity insertions

REACTIVITY WORTHS [70; 70]
- RT reactivity
- RT reactivity insertions

REACTOR ACCIDENTS [228; 419]
- BTI accidents
- NTI excursions
- NTI loss of coolant
- NH maximum credible accident
- NTI meltdown
- NTI reactor core disruption
- RT burnout
- RT reactor operation
- RT reactor safety

-reactor argentin-0
- USE ra-0 reactor

-reactor argentin-1
- USE ra-1 reactor

-reactor argentin-2
- USE ra-2 reactor

-reactor argentin-3
- USE ra-3 reactor

REACTOR CELLS [47; 47]
- UF -cells (reactor)
- RT reactor lattices

REACTOR CHANNELS [42; 123]
(Passage through the reactor.)
- UF -channels (reactor)
- BTI reactor components
- NTI beam holes
- NTI experimental channels
- NTI fuel channels

REACTOR CHARGING MACHINES [46; 46]
- UF -charging machines (reactor)
- UF -loading machines (reactor)
- BTI reactor components
- RT reactor fueling
- RT remote handling

-reactor chemistry
- USE radiochemistry

REACTOR COMMISSIONING [27; 27]
- UF -commissioning (reactor)
- RT national control

REACTOR COMPONENTS [84; 2,597]
- NTI burnable poisons
- NTI control elements
- NT2 regulating rods
- NT2 scram rods
- NT2 shim rods
- NTI control rod drives
- NTI fuel elements
- NT2 annular fuel elements
- NT2 fuel pins
- NT2 fuel plates
- NT2 fuel rods
- NT3 hollow fuel rods
- NT2 fuel wires
- NT2 spent fuel elements
- NTI reactor channels
- NT2 beam holes
- NT2 experimental channels
- NT2 fuel channels
- NTI reactor charging machines
- NTI reactor cooling systems
- NT2 direct cycle cooling systems
- NT2 dual cycle cooling systems
- NT2 integrated cooling systems
- NT2 primary coolant circuits
- NT2 secondary coolant circuits
- NT2 shrouds
- NTI reactor cores
- NT2 coupled reactor cores
- NTI reactor experimental facilitie
- NT2 beam holes
- NT2 experimental channels
- NT2 in pile loops
- NT2 rabbit tubes
- NTI reactor materials
- NT2 breeding blankets
- NT2 matrix materials
- NT2 nuclear fuels
- NT3 fuel slurries
- NT3 gas fuels
- NT3 liquid fuels
- NT4 fuel solutions
- NT4 liquid metal fuels
- NT4 molten salt fuels
- NT3 solid fuels
- NT4 alloy nuclear fuels
- NT4 dispersion nuclear fuels
- NT3 spent fuels
- NT4 spent fuel elements
- NTI reactor safety fuses
- RT alarm systems
- RT containers
- RT containment
- RT control equipment
- RT cooling towers
- RT electrical equipment

REACTOR COMPONENTS
- RT electronic equipment
- RT fins
- RT heat exchangers
- RT jackets
- RT leak detectors
- RT pumps
- RT shielding materials
- RT shields
- RT sleeves
- RT spacers
- RT vanes

-reactor control rods
- USE control elements

REACTOR CONTROL SYSTEMS [253; 253]
(The processes and operations ensuring the control and safe running of a nuclear reactor.)
- UF -monitors (reactor)
- BTI control systems
- RT automation
- RT burnable poisons
- RT configuration control
- RT control elements
- RT control rod drives
- RT fluid poison control
- RT neutron detectors
- RT neutron monitors
- RT on-line control systems
- RT reactor safety fuses
- RT thermocouples

-reactor control theory
- USE reactor kinetics

REACTOR COOLING SYSTEMS [418; 584]
- UF -cooling system (reactor)
- BTI reactor components
- NTI direct cycle cooling systems
- NTI dual cycle cooling systems
- NTI integrated cooling systems
- NTI primary coolant circuits
- NTI secondary coolant circuits
- NTI shrouds
- RT blowers
- RT boilers
- RT bypasses
- RT compressors
- RT coolants
- RT cooling
- RT demineralizers
- RT economizers
- RT feedwater heaters
- RT fluid flow
- RT heat exchangers
- RT heat transfer
- RT hot channel
- RT hot spots
- RT loss of coolant
- RT pressure tubes
- RT pressurizers
- RT pumps
- RT recombiners
- RT steam condensers
- RT steam generators
- RT steam jet ejectors
- RT steam separators
- RT steam turbines
- RT superheaters
- RT tubes
- RT valves
- RT vapor generators

→ REACTOR CORE DISRUPTION [0; 0]
- BTI reactor accidents
- BT2 accidents
- RT reactor cores

REACTOR CORES [655; 673]
- UF -cores (reactor)
- BTI reactor components
- NTI coupled reactor cores
- RT control elements
- RT fuel assemblies
- RT fuel elements
- RT in core instruments

A00   PHYSICAL SCIENCES

A10   GENERAL PHYSICS

A11   Mathematical and General Theoretical Physics

A12   Atomic and Molecular Physics

A13   Solid-State and Fluid Physics

A14   Plasma Physics and Thermonuclear Reactions

A15   Astrophysics and Cosmology, Cosmic Radiation

A16   Direct Energy Conversion

A17   Low-Temperature Physics

A20   HIGH ENERGY PHYSICS

A21   Elementary Particles (Theory)

A22   Elementary Particles (Experimental)

A30   NEUTRON AND NUCLEAR PHYSICS

A31   Neutron Physics

A32   Radiation Physics

A33   Nuclear Theory

A34   Nuclear Properties and Reactions

B00   CHEMISTRY, MATERIALS AND EARTH SCIENCES

B10   CHEMISTRY

B11   Chemical and Isotopic Analysis

B12   Inorganic, Organic and Physical Chemistry

B13   Radiochemistry and Nuclear Chemistry

B14   Radiation Chemistry

B15   Corrosion

B16   Fuel Processing and Reprocessing

B20   MATERIALS

B21   Metals and Alloys (Production and Fabrication)

B22   Metals and Alloys (Physical Properties and Structure)

B23   Ceramics and Cermets

B24   Other Materials

B25   Radiation Effects on Physical Properties of Materials

B30   EARTH SCIENCES

B31   Land

B32   Water

B33   Atmosphere

C00   <u>LIFE SCIENCES</u>

C10   ALL EFFECTS AND VARIOUS ASPECTS OF EXTERNAL RA-
DIATION IN BIOLOGY

C11   Effects of External Radiation on Biochemicals and Cell and Tissue
Cultures

C12   Effects of External Radiation on Microorganisms

C13   Effects of External Radiation on Plants

C14   Effects of External Radiation on Animals

C15   Effects of External Radiation on Man

C20   RADIONUCLIDE EFFECTS AND KINETICS

C21   Toxicology, Tissue Distribution, Metabolism and Removal of
Radionuclides

C22   Radionuclide Ecology

C30   TRACER STUDIES IN LIFE SCIENCES

C31   Novel Tracer Techniques

C40   APPLIED LIFE SCIENCES

C41   Plant Cultivation and Breeding

C42   Pest and Disease Control

C43   Food Protection and Preservation

C44   Animal Husbandry

C45   Other Applications of Radiations and Radioisotopes in the Life
Sciences

C50   HEALTH, SAFETY AND ENVIRONMENT

C51   Radiation Hazards

C52   Safety Evaluations and Environmental Aspects of Nuclear In-
stallations

C53   Radiation Protection Standards

C54   Radiation Protection Procedures

D00   ISOTOPES, ISOTOPE AND RADIATION APPLICATIONS

D10   ISOTOPES AND RADIATION SOURCES

  D11   Production of Enriched Uranium
  D12   Production of Heavy Water
  D13   Other Isotope Production and Enrichment
  D14   Radiation Sources
  D15   Radiation Source Metrology

D20   ISOTOPE AND RADIATION APPLICATIONS

  D21   Power Production
  D22   Industrial Applications, Radiometric
  D23   Industrial Applications, Radiation Processing
  D24   Tracer Techniques

E00   ENGINEERING AND TECHNOLOGY

 E10   ENGINEERING

  E11   Thermodynamics and Fluid Flow
  E12   Cryogenics
  E13   Structures and Equipment
  E14   Nuclear Explosions
  E15   Facilities for Handling of Radioactive Materials
  E16   Accelerators (whether for Particle Research or not)
  E17   Materials Testing

 E20   NUCLEAR REACTORS (GENERAL)

  E21   Reactor Theory and Calculation
  E22   Reactor Components and Accessories
  E23   Reactor Fuels
  E24   Reactor Control Systems

 E30   REACTOR TYPES

  E31   Power Reactors, Non-Breeding, Light-Water Moderated, Boiling Water Cooled (BWR etc. types)
  E32   Power Reactors, Non-Breeding, Light-Water Moderated, Non-Boiling Water Cooled (PWR etc. types)
  E33   Power Reactors, Non-Breeding, Graphite-Moderated (GCR, AGR, HTGR etc. types)

E34   Power Reactors, Non-Breeding, Otherwise Moderated or Un-
       moderated

E35·   Power Reactors, Breeding

E36   Research and Test Reactors, including Experimental Reactors
       (Zero Power Reactors and Subcritical Assemblies) and Training
       Reactors

E37   Production Reactors (Producing Fissionable Materials), Irradiation
       Reactors such as Chemonuclear Reactors, Isotope Production Re-
       actors, Tritium Production Reactors, Materials Testing Reactors,
       Material Processing Reactors

E38   Mobile, Propulsion, Transportable and Package Reactors

E40   INSTRUMENTATION

E41   Particle and Radiation Detection and Measuring Instruments and
       Methods

E42   Other Nuclear Instrumentation and Methods of Measurement

E43   Radiation Effects on Instruments, Components or Electronic De-
       vices

E50   WASTE MANAGEMENT

E51   Waste Treatment

E52   Waste Disposal

F00   OTHER ASPECTS OF NUCLEAR ENERGY

F10   ECONOMICS

F11   Nuclear Power Economics

F12   Reactor Fuel Economics

F13   Economics of Isotope and Radiation Applications

F20   NUCLEAR LAW

F21   Radioactive Materials

F22   Nuclear Installations

F23   Radiation Health

F24   Transport and Storage of Radioactive Materials

F25   Liability for Nuclear Damage

F26   Nuclear Ships and other Nuclear Means of Conveyance

F27   Organization and Administration of Nuclear Activities

F28   Nuclear Disarmament and Safeguards

F30   NUCLEAR DOCUMENTATION   Appendix II

  F31   Data Handling

  F32   Literature Handling

F40   SAFEGUARDS AND INSPECTION

  F41   Technical Aspects

  F42   Non-Technical Aspects

F50   MATHEMATICAL METHODS AND COMPUTER CODES

  F51   Nuclear Computation and Simulation

F60   MISCELLANEOUS

  F61   General Relevant Documents

  F62   Progress Reports

INIS Reference Series

IAEA-INIS-1	INIS: Descriptive Cataloguing Rules
IAEA-INIS-2	INIS: Descriptive Cataloguing Samples
IAEA-INIS-3	INIS: Subject Categories and Scope Descriptions
IAEA-INIS-4	INIS: Instructions for Submitting Abstracts
IAEA-INIS-5	INIS: Terminology and Codes for Countries and International Organizations
IAEA-INIS-6	INIS: Authority List for Corporate Entries
IAEA-INIS-7	INIS: Magnetic and Punched Paper Tape Codes and Character Sets
IAEA-INIS-8	INIS: Paper Tape Specifications and Record Format
IAEA-INIS-9	INIS: Magnetic Tape Specifications and Record Format
IAEA-INIS-10	INIS: Transliteration Rules for Selected Non-Roman Characters
IAEA-INIS-11	INIS: Authority List for Journal Titles
IAEA-INIS-12	INIS: Manual for Indexing
IAEA-INIS-13	INIS: Thesaurus
IAEA-INIS-14	INIS: Description of Computer Programs
IAEA-INIS-15	INIS: Self-Training Manual for Descriptive Cataloguers

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SEARCHED TEXT = INIS VOL 4 ISSUE 13-14   (TELETEXT-REFORMATED)

SEARCH PROFILE   TERM FREQUENCY
0033 INO   RISØ-TEST
AR3   THERMAL ANALYSIS   28
AR3   HEAT TRANSFER   34
AR3   HYDRAULICS   4
AR3   FLUID FLOW   39
BR3   FUEL CHANNELS   3
BR3   FUEL ASSEMBLIES   10
BQ2   SUBCHANNEL   0

ANSWER   TO   PROFILE   NO.0033   USERS OUTPUT LIMITS =   50/ 100

065667/E22/R   WEIGHT=0000
    EL-FOULY, M.F.   RIZK, A.M.   DARWISH, M.A.
    ALI, S.E
      ATOMIC ENERGY ESTABLISHMENT, INSHAS (EGYPT).
    / EXPERIMENTAL LOOP FOR CONDENSATION MEASUREMENTS ON
      HORIZONTAL TUBE BUNDLE.
    * FILM CONDENSATION; FUEL ELEMENT CLUSTERS; HEAT TRANSFER;
      LAMINAR FLOW; REACTOR COOLING SYSTEMS; VAPOR
      CONDENSATION;
      BT: FLUID FLOW; FUEL ASSEMBLIES; REACTOR COMPONENTS. E22
    AREAEE--154. 1972. 19 P.

065683/E22/P   WEIGHT=0000
    MUENCHOW, H.O
      USAEC, WASHINGTON, D.C.
    / TRANSFER MACHINE FOR NUCLEAR REACTOR.
    * COOLING; COST; ECONOMICS; FUEL ASSEMBLIES; HEAT
      EXCHANGERS; HEAT TRANSFER; LIQUID METAL COOLED REACTORS;
      MACHINE PARTS; PATENTS; REACTOR COOLING SYSTEMS; REACTOR
      FUELING; USA;
      BT: DOCUMENT TYPES; NORTH AMERICA; REACTOR COMPONENTS;
      REACTORS. E22
    US PATENT 3629062. 21 DEC 1971. 4 P. 5 FIGS., FILED 12 MAY
    1969.

065708/E23/P   WEIGHT=0000
    MUELLER, R.A
      GESELLSCHAFT FUER KERNFORSCHUNG M.B.H., KARLSRUHE (F.R.
      GERMANY).
    / FUEL ELEMENT BUNDLE FOR NUCLEAR REACTORS.
    * COOLANTS; DIAGRAMS; FUEL ELEMENT CLUSTERS; FUEL RODS;
      LIQUID FLOW; PATENTS; REACTORS; USA;
      BT: DOCUMENT TYPES; FLUID FLOW; FUEL ASSEMBLIES; FUEL
      ELEMENTS; NORTH AMERICA; REACTOR COMPONENTS. E23
    US PATENT 3658646. 25 APR 1972. 2 P. 4 FIGS., FILED 7 OCT
    1968.

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066831/E11/J   WEIGHT=0000
    MARKOCZY, G.
    / CONVECTIVE HEAT TRANSFER IN ROD CLUSTERS WITH TURBULENT
      AXIAL COOLANT FLOW. P. 1. MEAN VALUES OVER THE ROD
      PERIMETER. (IN GERMAN).
    * COMPARATIVE EVALUATIONS; CONVECTION; COOLANTS; DATA;
      DIMENSIONS; FUEL ELEMENT CLUSTERS; FUEL RODS; GEOMETRY;
      HEAT EXCHANGERS; TURBULENT FLOW;
      BT: FLUID FLOW; FUEL ASSEMBLIES; FUEL ELEMENTS; HEAT
      TRANSFER; INFORMATION; MATHEMATICS; REACTOR COMPONENTS.
      E11 E22 E23
    WAERME STOFFUEBERTRAG. (1972). V. 5(4) P. 204-212. 14 FIGS.;
    1 TAB.; 19 REFS.

TOTAL   4 HITS OUT OF   2282 SEARCHED