

WEIZMANN INSTITUTE OF SCIENCE

WIX LIBRARY

INSTRUCTIONS FOR ALEPH

JUNE 1991

Rev. ed.

ALEPH stands for: Automated  
Library  
Expendable  
Program

### WEIZMANN INSTITUTE OF SCIENCE

ALEPH can be used instead of WIX LIBRARY catalog for the years 1980 to the present. However, older entries can be found, with the retrospective conversion project already under way, the second stage being the entries from 1975-1980. Nonetheless, the manual catalog should still be consulted if the entry is not found in ALEPH.

### INSTRUCTIONS FOR ALEPH

Entry into Various Terminals and/or Computers

There are different terminals at the Weizmann Institute of Science from which you access ALEPH:  
JUNE 1991  
Rev. ed.

ALEPH stands for: Automated compatible connected to the  
mainframe. The Library three ways to enter into ALEPH through a  
PC:  
Expandable  
Program  
I. PROCORN Hebrew University  
II. ALEPH

ALEPH can be used instead of the manual catalog for the years  
1980 to the present. However, older entries can be found, with  
the retrospective conversion project already under way, the second  
stage being the entries from 1975-1980. Nonetheless, the manual  
catalog should still be consulted if the entry is not found in  
ALEPH.

D. Napintosh - English only

#### Entry into Various Terminals and/or Computers

P.S. The next pages include an explanation of the ways to access  
There are different terminals and computers at the Weizmann  
Institute of Science from which one can access ALEPH: is in  
the chapter: Searching in ALEPH.

A. **PC**, i.e., any IBM, PC or compatible connected to the mainframe. There are three ways to enter into ALEPH through a PC:

- I. **PROCOMM** - English only
- II. **ALEPH**
- III. **KERMIT**

B. **VT 200** (or higher) and **Visual 603/630**.

C. **Mainframe terminal** (IBM 3180, or compatible) - English only.

D. **Macintosh** - English only.

P.S. The next pages include an explanation of the ways to access ALEPH, technically.

The search explanation for bibliographic details is in the chapter: Searching in ALEPH.

To quit ALEPH type STOP on the main search screen. Choose option 1 (logout), and a local prompt will appear. Type: log, or press either alt + X, or the escape key.

If you use a modem follow the connection procedure until you are asked to "enter your selection".

A. I. **PROCOMM**

If you have a hard disk and **Procomm** has been copied on your hard disk, you type **Procomm** from the c prompt:

```
c:\>cd procomm [enter]
```

```
c:\procomm>procomm [enter]
```

If you do not have a hard disk, insert the **procomm** diskette into drive (a:) (make sure that it is locked), and then type **procomm** from the a: prompt:

```
a:\>procomm [enter]
```

Upon seeing the cursor at the left top corner, press the space bar and a menu will appear as follows:

```
Enter your selection: DEC [enter]
```

```
Connected to [enter]
```

```
Username: ALEPH [enter]
```

```
Local>c wislib [enter]
```

```
WELCOME TO WISLIB VMS V5.3
```

```
Username: ALEPH [enter]
```

```
Terminal selection: [option 11 (for P.C.)] [enter]
```

```
Function selection: [option 2 (online Aleph)] [enter]
```

A search screen will then appear.

To quit **ALEPH** type **STOP** on the main search screen.

Choose option 1 (logout), and a local prompt will appear.

Type; log, or press either alt + X, or the escape key.

If you use a modem follow the connection procedure: untill you are asked to "enter your selection".



A. II. **ALEPH**

Place ALEPH diskette in drive (a:) unless it is copied to the hard disk (c:). Whether the prompt is a:\> or c:\>:

Type ALEPH (or autoexec)

Once the cursor appears at the top left corner of the screen, press the space bar

Enter your selection: DEC [enter]

Local>c wislib [enter]

Username: ALEPH [enter]

Terminal selection: [option 9 (for P.C.)] [enter]

Function selection: [option 2 (online Aleph)] [enter]

A search screen will then appear.

To quit ALEPH, type STOP on the main search screen.

Choose option 1 (logout), and a local prompt will appear.

Press the escape key, and a menu appears. Choose option

0 (exit program).

If you use a modem follow the connection procedure:  
untill you are asked to "enter your selection".

If you use a modem follow the connection procedure  
untill you are asked to "enter your selection".

B. VT 220 (or higher) and Visual 530/530, ITS ... or compatibles.

This terminal is the best to work with on ALEPH, and in the  
WIS Libraries it is ALEPH dedicated.

Turn on the computer

Press the space bar

Enter your selection: DEC [enter]

Connected to [enter]

Username: ALEPH [enter]

A. III. **KERMIT**

Place diskette in drive a: (or c:)

a:\>Kermit [enter, a cursor will appear at the top left corner of the screen]

Enter your selection: DEC

Connected to [enter]

Username: ALEPH [enter]

Local\>c wislib [enter]

Welcome to...

Username: ALEPH [enter]

Terminal selection [option 3, Visual 102] [enter]

Function selection [option 2, Online Aleph] [enter]

A search screen will then appear.

To quit ALEPH, type STOP on the main search screen.

Choose option 1 (logout), and a local prompt will appear.

Type log.

When disconnected, press: alt + X, and a Kermit-MS> prompt will appear.

If you use a modem follow the connection procedure: untill you are asked to "enter your selection".

B. **VT 220** (or higher) and **Visual 603/630**, IIS ... or compatibles.

This terminal is the best to work with on ALEPH, and in the WIS Libraries it is ALEPH dedicated.

Turn on the computer

Press the space bar

Enter your selection: DEC [enter]

Connected to [enter]

Username: ALEPH [enter]

D. Local>c wislib [enter]  
WELCOME TO WISLIB VMS V5.3  
Username: ALEPH [enter]  
Terminal selection: [option 11 (for VT 220)] [enter]  
Function selection: [option 2 (online Aleph)] [enter]  
A search screen will then appear.

To quit ALEPH, press the "BREAK" key. A local prompt will appear. Type log. You will be disconnected from the program.

C. **Mainframe terminals** (IBM 3180 or compatible)

Put on the terminal  
Type userid and password [enter]  
Ready; type: Session Ethernet [enter]  
Ready; type: Telnet Wislib [enter]  
Welcome to WISLIB VMS V5.3  
Username: ALEPH [enter quickly or it will disconnect]  
Terminal selection: [option 5 (TTY)] [enter]  
Function selection: [option 2, Online Aleph] [enter]  
A search screen will then appear.  
To quit ALEPH, type STOP on the main search screen. Choose option 1 (logout).  
Session ended [enter, to return to CMS]  
Ready;

[This is the least advised option to access ALEPH since the screen is split.]



D. **Macintosh**

Start Macintosh in System English

Double click on Communications

Double click on NCSA Telnet 2.2

From FILE: click on Connection

In the dialog box, Session name: Type WISLIB

Click on: OK

From FILE again click on: [Save Set To:]

Type WISLIB in the dialog box, then click on Save.

This procedure is done only once. As a result, a WISLIB icon is established. Thereafter, go directly to this icon for searching in ALEPH.

To search in ALEPH where the WISLIB icon already exists:

Double click on WISLIB icon.

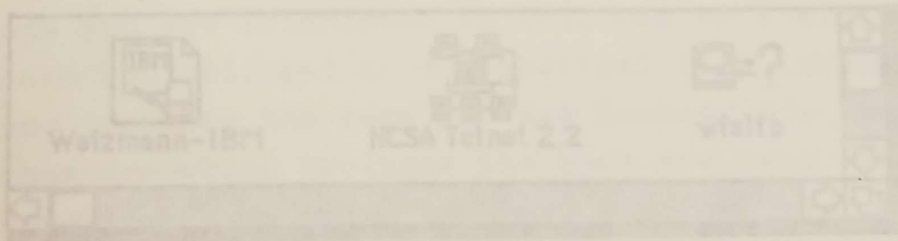
Username: ALEPH [enter quickly otherwise it will disconnect]

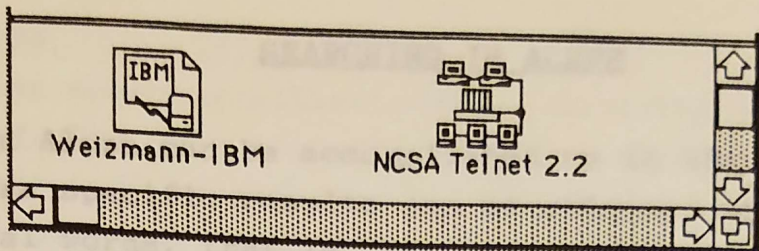
Terminal selection: choose option 2 [VT100] and enter.

Function selection: choose option 2 [online ALEPH] and enter.

A search screen will then appear.

To quit ALEPH, type STOP on the main search screen. Choose option 1 [logout] and enter.





Session name

Window Name

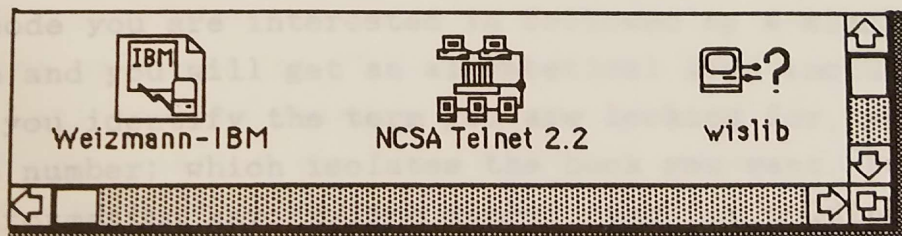
A dialog box with a dark border. It contains two text input fields. The first is labeled 'Session name' and contains the text 'WISLIB'. The second is labeled 'Window Name' and is empty. Below the fields are three buttons: 'Configure', 'OK', and 'Cancel'.

WISLIB

Welcome to WISLIB vmsV5.2

Username: █

I

A terminal window with a header bar containing the text 'WISLIB'. Below the header, the text 'Welcome to WISLIB vmsV5.2' is displayed. Below that, the text 'Username: █' is shown, where '█' represents a cursor. Further down, a vertical cursor 'I' is visible.

From the above codes, a system number will be displayed. This number will provide direct access to the bibliographic record (B)\* or holdings (H)\*\*.

Enter the code, the search term and press the key. Once the search term is entered, press the key: F/line number. Detailed information is available by pressing the key: H/line number.

\* Bibliographic record - full details of the book, similar to the card catalog

\*\*Holdings - location of the book, including details about its vols., parts, etc.

## SEARCHING IN ALEPH

Searching in Aleph can be accomplished as in the manual catalog. However, more specific results can be obtained through the search of individual words; that is, if a certain author, title or subject is not exactly known. Searches can also be done in other university libraries. However, sometimes they might be difficult to access, due to the lack of sufficient communication lines. The main search screens in English and in Hebrew are attached.

Search Codes in Aleph:

- AU** (authors, or corporate bodies)
- TL** (titles, or series)
- SH** (subjects, or congress locations)
- CN** (call number - Dewey decimal classification no.)
- WAU** (a word from author or corporate body)
- WTL** (a word from title)
- WSH** (a word from subject heading or location)
- WSN** (a word from series)

From the above codes, a system number will identify each entry. This number will provide direct access either to the bibliographic record (B)\* or holdings (H)\*\*.

Enter the code you are interested in followed by a slash and your search term and you will get an alphabetical list including your term. Once you identify the term you are looking for, you have to key: P/line number; which isolates the book you want. For more detailed information key: B/line number, and for holdings key: H/line number.

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\* Bibliographic record - full details of the book, similar to the card catalog

\*\*Holdings - location of the book, including details about its vols., parts, etc.



### I. BROWSING

The user searches a list similar to using a manual card catalog. The user requests the type of list (author, title, subject) and the place in the alphabetic sequence to start the display (eg. subjects starting with 'clim')

### II. RETRIEVAL

Retrieval is a process by which ALEPH searches the lists for documents that share common characteristics and match user specified conditions (e.g. all documents dealing with climate and written by the author 'Smith'). Retrieval can be based on single or multi-level conditions.

### III. HOW TO SEARCH

The main search menu can be accessed by typing: SE. This screen displays instructions to the user. Here are some of the options available for the user:

- ? - choose language
- ! - LB - Searchable libraries
- x - SE - main search menu
- F - a screen for entering retrieval request

Three procedures are available for searching:

1. BS - a screen explaining possibilities for boolean guided search.
2. BS - CCL search.
3. Find - CCL search (covers several languages)

The last 20 commands entered at the terminal can be displayed if you press the up arrow (on VT 220 and compatible). Information in Hebrew and Latin can be searched irrespective of the current language of conversation via the 'ALPHA/L' command for latin and 'ALPHA/H' for Hebrew (caps key must be unlocked).



### HOW TO SEARCH IN BROWSING MODE

Type the search command in one of the following formats:

code/text (AU/Shakespeare)

code/text/text (TL/clim/sat)

The system will display records that match both text conditions.

In this case climatology from satellites.

One can deepen the search on one specific entry by displaying its related documents (P command) or its cross references (RF command) or its holdings (H command).

If the displayed list is authority or words, users can create a set of the documents related to one of the entries (CS command)

The created set can be used for further manipulation.

CS/Code = text/ text

### HOW TO SEARCH IN RETRIEVAL MODE

The search queries are based on the lists (authorities, words, index) with optional Boolean relations defined between and within the lists ('and' 'or' 'not') Text masking is also available.

? - for truncation (right or left)

! - for one character masking

% - for none or one character masking

CS/Au = Lewis, Lambert/TL = Paleobiology

Three procedures are available for retrieval:

1. **CS** = Free format retrieval
2. **BS** = Guided retrieval
3. **Find** = CCL search (common command language)

CS/CN = 369? (publications with call number beginning 369)

GUIDED RETRIEVAL - BOOLEAN SEARCH (SBI)

The user can get a list of all sets created via the 'LS' command (list of sets) and display the list of documents contained within each set via the p/line no. command. to get an example of a list of sets screen.

2. SE "au = Kerr? / sh = opt?" (3)
3. SE "sh = Opt?" (8)
4. SE "au = Kerr?, win/sh = opt?" (6)

Example: BS

Boolean operations = BL/line no. AND-OR-AND NOT line no.,  
Re-display list = LS Limit = Lm/line no.,  
Code/Text/text, field codes = FC  
publications = p/line no., Delete Set = DL/line no.  
Delete list of sets = Dl/ALL, Write file = write/line no.

To exit enter any character here \_\_\_\_\_ and press enter.

Note - a retrieval request runs faster on word lists than on authority (ACC) lists.

Use comma to define "OR" and slash to define "And"

Au - Enter Author (S) Win ? Kerr?  
SH - Enter subject (S) opt.?  
TL - Enter title (S) \_\_\_\_\_

after entering the text, press enter to begin retrieval

COMMON COMMAND LANGUAGE

The ALEPH CCL main functions:  
Right and left truncation  
Masking of characters  
Boolean operators  
Ranging operators  
etc.  
for us, the main function of CCL is the FIND command.

## GUIDED RETRIEVAL - BOOLEAN SEARCH (BS)

Boolean search can be initiated from any search screen:

1. Decide which Boolean screen is desired - type 'BS' to get a help screen describing the boolean screens available for the particular application.

2. Enter the code of the selected screen:

BS (n=2-6)

Example: BS

Screen

---

### **SEARCH**

Boolean Search

To exit enter any character here \_\_\_\_\_ and press enter.

To move from one line to another use the "Tab" key.

To return to a previous field use "shift + Tab"

Use comma to define "OR" and slash to define "And"

**Au** - Enter Author (S) Win ?, Kerr?

**SH** - Enter subject (S) opt ?

**TL** - Enter title (S) \_\_\_\_\_

after entering the texts, press enter to begin retrieval

---

### COMMON COMMAND LANGUAGE

The ALEPH CCL main functions:

Right and left truncation

Masking of characters

Boolean operators

Ranging operators

etc.

for us, the main function of CCL is the FIND command.



A find request may assume different formats and options. Character masking and truncation is allowed as well as boolean operators (And, Or, Not) that are used logically connecting search terms, result sets, or both.

Type: find to get a screen from which you can conduct your search. a sample of the find screen is attached.

The print command is activated via the 'PR' command. PR/line no. on list of headings, list of words or list of sets screen.

#### HELP

From any point in search, HELP can be typed, and an explanation screen will appear. Attached is the main HELP screen found through the main search screen.

ALEPH is continually being developed, and new versions are always being implemented. (Version 2.3 is the current edition.) The Library will periodically distribute newsletters as developments occur. The Wix Library is always available for questions; telephone: 3359, 3295.

GOOD LUCK IN YOUR SEARCHES



Search Library Weiz. Ins  
All operations listed below can be initiated on any Search screen.

- 
- SEARCH - SE displays Main Search screen.
  - LANGUAGE - ? displays a screen for choosing language of instructions.
  - DIRECTION of keying - ALPHA/L (Latin character set), positions the cursor for keying from left to right. ALPHA/H (Hebrew character set) and ALPHA/A (Arabic character set) position the cursor for keying right to left.
  - LIBRARY - LB displays a screen that lists the libraries that can be searched. Current LIBRARY is displayed on the top line of the screen.
  - SETS - LS displays a screen of sets saved at the terminal.
  - HELP - HELP displays an explanation of the display screen and its codes.
  - PRINT SCREEN - PS on any Search screen will print the screen on a slave attached to the terminal.
- Remember to press ENTER after entering your request.

---

To continue, type C and press ENTER or RETURN.  
Press ENTER or RETURN to return to previous screen.  
Type STOP to quit ALEPH

---

ALT-F10 HELP | VT-100 | FDX | 9600 N81 | LOG CLOSED | PRT OFF | CR | CR

ALT-F10 HELP | VT-100 | FDX | 9600 N81 | LOG CLOSED | PRT OFF | CR | CR

Search Library Weiz. Ins

Not all the valid operation codes are displayed on every screen.

You can initiate a search, using valid search code at any screen.

The system 'remembers' the last screen from each type displayed on the terminal, a feature that facilitate search. Typing B (bibliographic record), H (holdings), IS (issues), AB (abstract), HX (Holdings - list of sub-libraries),

P (list of publications), P/line number will relate to the last access.  
Codes of individual record (.... ) /line number will relate to the last list of publication displayed.

---

Type R and press ENTER to return to previous screen.  
Press ENTER to return to first search screen.

---

ALT-F10 HELP | VT-100 | FDX | 9600 N81 | LOG CLOSED | PRT OFF | CR | CR

Search  
Boolean search

Library Weiz. Ins

\*\*\* To exit, type X < > here and press ENTER \*\*\*  
Use TAB key to move from one line to the next.

Separate words with a slash (/) or a comma (,).

A slash (/) denotes an "and" relationship.

A comma (,) denotes an "or" relationship.

An "and" relationship BETWEEN sentences is assumed.

Note that "or" operations are performed BEFORE "and" operations.

Enter word(s) from symposia/meeting, etc.

Enter word(s) from title

Enter word(s) from subject

Enter word(s) from series

Any WORD(S)

---

ALT-F10 HELP | VT-100 | FDX | 9600 N81 | LOG CLOSED | PRT OFF | CR | CR

Search

Library Weiz. Ins

-----  
B O O L E A N    S E A R C H - type BS and press ENTER.  
C C L            S E A R C H - type F and press ENTER.  
-----

C A T A L O G    S E A R C H

Search codes:

AU - Author,  
     Corp. Body  
TL - Title, Series  
SH - Subject,  
     Place of Symp.

CN - Call Number  
WAU - Words Author  
WTL - Words Title  
WO - Any Word  
WSH - Words Subject

Direct access:

B - Bibliographic record  
H - Holdings

The Library you are searching in is displayed on top of each screen.  
If you want to search in another library - type LB.

TO BEGIN SEARCH TYPE ONE OF THE ABOVE CODES/TEXT, AND PRESS ENTER.

-----  
To return to this screen - type SE and press ENTER.  
Keying HELP on any screen will display an explanation.  
Type STOP to quit ALEPH  
-----

ALT-F10    HELP | VT-100    | FDX | 9600 N81 | LOG CLOSED | PRT OFF | CR    | CR



UNION LIST OF SERIALS - LIBRARY CODES

AD - (ISRAEL ATOMIC ENERGY COMMISSION, SOREH NUCLEAR RESEARCH)

AE - (ISRAEL GOVERNMENT HOSPITAL)

חיפוש

-----  
 ש ל י פ ה - מודרכת - הקש במ ולחץ ENTER  
 -----

ח י פ ו ש ב ק ט ל ו ג י ם

חיפוש בגישה ישירה:	מל - מלים	סמלי חיפוש :
ב - מידע ביבליוגרפי	עש - מיון עשיוני	מח - מחברים
ע - כרכים, עותקים ומקום	ממ - מספר מדף	כת - כותרים
חב - חוברות (כתבי עת)		נש - נושאים

שם הספרייה בה הנך מחפש מוצג בראש כל מסך. כדי לחפש בספרייה אחרת הקש ספ.  
 כדי ל ה ת ח י ל ב ח י פ ו ש - הקש סמל/טכסט ולחץ ENTER.  
 להצבת הכוון בצד שמאל (לחיפוש בלועזית) - לחץ על מקש 'עברית', להחזירו - 'לועזית'.

כדי לצאת חזור למסך האנגלי (ENG/?)

-----  
 כדי לחזור למסך זה מכל מסך חיפוש - הקש חפ ולחץ ENTER.  
 כל מסך מלווה בהסבר התוכן והסמלים, אשר יופיע לאחר לחיצה על מקש הסבר.

OVRSTRK                      ECHO                      BLOK                      עברית

AG - (UNIV. OF BALTIMORE)

IAI - (ISRAEL AIRCRAFT INDUSTRIES LTD.)

IC - (MEDICAL CENTER TEL AVIV ICHILOV HOSPITAL)

IOLD - (ISRAEL OCEANOGRAPHIC AND LIMNOLOGICAL RES.)

KH - (KAPLAN HOSPITAL)

LE - (LOTYANETSIN HOSPITAL-REHABILITATION CENTER)

ME - (MERZ HOSPITAL, MEDICAL LIB.)

MS - (ISRAEL METEOROLOGICAL SERVICE)



UNION LIST OF SERIALS - LIBRARY CODES

- AC - (ISRAEL ATOMIC ENERGY COMMISSION, SOREQ NUCLEAR RESEARCH)
- AR - (ASAF HA-ROFE GOVERNMENT HOSPITAL)
- BH - (BEILINSON HOSPITAL. MEDICAL LIBRARY)
- BI - (BAR ILAN UNIV. CENTRAL LIBRARY)
- BR - (ISRAEL INSTITUTE FOR BIOLOGICAL RES.)
- D - (MINISTRY OF DEFENCE A. D. A. LIBRARY)
- DEF - (OFFICE OF DEFENCE R. & D. DOCUMENTATION AND INFORMATION CENT).
- EW - (EDITH WOLFSON HOSPITAL)
- GS - (GEOLOGICAL SURVEY. LIBRARY)
- H - (UNIV. OF HAIFA)
- IAI - (ISRAEL AIRCRAFT INDUSTRIES LTD).
- IC - (MEDICAL CENTER TEL AVIV ICHILOV HOSPITAL)
- IOLR - (ISRAEL OCEANOGRAPHIC AND LIMNOLOGICAL RES.)
- KH - (KAPLAN HOSPITAL)
- LE - (LOEVENSTEIN HOSPITAL-REHABILITATION CENTER)
- ME - (MEIR HOSPITAL. MEDICAL LIB.)
- MS - (ISRAEL METEOROLOGICAL SERVICE)

MRC - (NUCLEAR RES. CENTER-NEGEV).

NUAG - (THE CENTRAL LIBRARY OF AGRICULTURAL SCIENCE & AGRIC).

NUC - (BEN-GURION UNIV. OF THE NEGEV)

NULA - (JEWISH NATIONAL AND UNIV. LIBRARY)

NULED - (HEBREW UNIV. OF JERUSALEM. SCHOOL OF EDUCATION).

NULG - (HEBREW UNIV. OF JERUSALEM. DEPT OF GEOLOGY).

NULS - (JEWISH NATIONAL AND UNIV. LIBRARY. JUDAICA READING ROOM).

NULM - (HEBREW UNIV. OF JERUSALEM. EINSTEIN INST. OF MATEMATICS).

NULMD - (NATIONAL MEDICAL LIBRARY)

NULME - (HEBREW UNIV. OF JERUSALEM. DEPT OF ATMOSPHERIC SCIENCE).

NULMS - (HEBREW UNIV. OF JERUSALEM MOUNT SCOPUS LIBRARY FOR THE HUMANITIES & SOCIAL SCIENCE).

NULSL - (HEBREW UNIV. OF JERUSALEM. AVRAHAM HARMAN LIB).

NULST - (JEWISH NATIONAL AND UNIV. LIBRARY)

NUMD - (BEN-GURION UNIV. OF THE NEGEV- QUPPAT HOLIM).

SH - (THE SHENKAR COLLEGE OF FASHION AND TEXTILE TECH).

SHEBA - (CHAIM SHEBA MEDICAL CENTER).

STI - (NATIONAL CENTER OF SCIENTIFIC AND TECH. INFORMATION)

- SZ - (SHAARE ZEDEK MEDICAL CENTER)
- T - (TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY. ELYACHAR CENTRAL LIBRARY).
- TBMD - (TECHNION - ISRAEL INST. OF TECHNOLOGY BIO - MEDICAL ENG).
- TCHE - (TECHNION ISRAEL INST. OF TECH. CHEMICAL ENG).
- TCHM - (TECHNION ISRAEL INST. OF TECH. CHEMISTRY LAB).
- TCIV - (TECHNION ISRAEL INST. OF TECH. CIVIL ENGINEERING LIBRARY).
- TELE - (TECHNION ISRAEL INST. OF TECH. FACULTY OF ELECTRICAL ENG).
- TMAT - (TECHNION ISRAEL INST. OF TECH. MATERIALS ENG).
- TMEC - (TECHNION ISRAEL INST. OF TECH. MECHANICAL ENG).
- TMED - (TECHNION ISRAEL INST. OF TECH. FACULTY OF MEDICINE).
- TMTH - (TECHNION ISRAEL INST. OF TECH. DEPT OF MATHEMATICS).
- TMUC - (TECHNION ISRAEL INST. OF TECH. LIBRARY. OF NUCLEAR ENG).
- TPHY - (TECHNION ISRAEL INST. OF TECH. PHYSICS LIBRARY).
- TU - (TEL AVIV UNIV. SOURASKY CENTRAL LIBRARY).
- TULS - (TEL AVIV UNIV. HENRY & GRETE ABRAHAMS LIB. OF SCIENCES).
- TUS - (TEL AVIV UNIV. LIBRARY OF EXACT SCIENCES & ENG).
- TUSM - (TEL AVIV UNIV. LIBRARY OF SOCIAL SCIENCE & MANAGEMENT).