Creating a Database of References Relevant to the FRC

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Why do we need a 'limited' database?

- Compact, faster access to full articles, specialized
- We need a way to safely store references
  - Easy access to articles/papers about subjects relevant to the project helps increase knowledge about the topic, which can allow us to experiment on and study the FRC more thoroughly and efficiently
  - Who will have access and how
- This need is best fulfilled by an electronic database because:
  - Searching capabilities make it easier to find specific items
  - Storage of references in electronic form makes it easier to share them
  - Simple transportation of references
  - Categorizes information about references
  - Grouping/sorting capabilities

Why *EndNote X4*?

- Designed to create a "library" of references
  - Very easy to either manually enter data or download from an online database
- Unique *EndNote* features:
  - Connected to over 430 online databases
  - Can sort references by any field
  - Can search any or all fields
  - Can globally add or replace terms
  - Can create up to 7 custom fields
  - Auto-completes authors, keywords, and journal titles that it recognizes
  - Who gets access and how? Web-based?

  ***Weaknesses????

Setting Up the Database

- Choosing categories
  - to constitute each entry
    - Author(s), year, title, journal, volume, pages, date, type of article, keywords, abstract, author address, pdf of article (if available) experimental or theoretical
  - to be displayed
    - Whether entry includes file attachment, author, date, title, journal, volume, author address, keywords
- Finding online databases with relevant articles and adequate citation information
  - ISI Web of Knowledge
  - Alternate sources: Energy Citations Database, Physical Review Letters database, Journal of Fusion Energy database, Google Scholar

Creating the Database

- Downloading articles and citation information
  - Necessity of editing
- Manually entering references unavailable online

Bibliographic Citation

Download as EndNote   Return to Search Results   Return t

For copies of Journal Articles, please contact the Publisher or yo information in the Resource Relation field

New Reference

Journal Article

Reference Types   Spelling   Attach Figure   Open Link   Open File

Author

Year

Title

Journal

Volume

Issue

Pages

Start Page

Epub Date

Date

Important Processes: Selecting Keywords

– Only certain online sites provide keywords as part of the download-able citation

– Need to develop keywords for manual entries and for downloaded entries that don't include them

– Read title and abstract

– Development of vocabulary of general terms

- More than just picking main words from title

- Help from *EndNote*'s auto-completion feature

– Mix of general and specific terms

Important Processes: Deciding E vs. T

- What constitutes experimental or theoretical?
  - Despite basic definition, there are some ambiguous instances
- Read title and abstract
- Read end of introduction, where paper layout is described (if applicable)
- Sometimes helpful to look at pictures/graphs
  - Explaining theory or presenting data?
- Can be E + T

Problems Encountered

- Purchasing *EndNote* ☺
- Backing up the file
- Formatting even downloaded citations
  - Some online sources do not provide all the required fields or they format the information differently
  - No perfect database
- Quality vs. quantity
  - Balancing obtaining a large number of entries against thoroughly completing and uniformly formatting each entry

Future Use of the *EndNote* Library

- Entering additional references
- Editing existing entries
- Searching a specific article
- Searching general topics
- Sorting or grouping references
- Changing display fields/customizing other options
- Printing a list

EndNote Layout and Functions Overview

Paper clip symbol signifies file attachment

Manually enter a reference

Type in any word to search all fields of all references for it

FRC Database.enl

Annotated

Mode   Styles   Copy to Local Library   New Reference   Sort   Quick Search   Search L

Automatic groups created by EndNote

My Library

	Author	Date	Title
📄	Albajar, F.; Bornatici, M.; Enge...		Recent progress in electron cycl
📄	Amatucci, W. E.; Blackwell, D. ...		Whistler wave propagation and v
📄	Anikeev, A.; Bagryansky, P.; C...		A synthesized hot ion plasmoid a
📄	Anikeev, A.; Bagryansky, P.; Iv...	June 2001	Upgrade of the gas dynamic trap
📄	Anikeev, A.V.; Bagryansky, P....	February 1997	Observation of magnetohydrody

All References (431)
Unfiled (431)
Trash (0)

▼ MY GROUPS

▼ ONLINE SEARCH
Library of ... (0)
LISTA (E... (0)
PubMed (... (0)
Web of Sc... (0)
more...

▼ ENDNOTE WEB
configure...

Preview   Search   **Quick Edit**

Journal Article

Author
Albajar, F.
Bornatici, M.
Engelmann, F.

Year

Edit any field in an existing reference

Showing 431 of 431 references.   Hide Tab Pane

Other Useful Functions

- **More specific search**: click 'search' (middle) tab in the tab pane → use drop-down menus to specify what fields you would like to be searched and enter corresponding words for each field
- **Sorting references**: Tools → Sort Library → select fields from drop-down menu by which you want to sort library → order of fields corresponds to order in which they are used to sort references
- **Grouping references**: Groups → Create Group → title your group → to add references, either drag and drop or go to Groups → Add References to... and then select the group name of the group you want to add the references to
- **Changing display fields**: EndNote X4 → Preferences → Display Fields → select from given list which field you want displayed
    - *EndNote X4 → Preferences can also be used to customize a variety of other features

Lessons Learned

- How to use a powerful citation tool like *EndNote*
- How to use *EndNote* for references
- How to extract important topics/keywords from an article with minimum reading
- The importance of having an accessible database
- Important terms and concepts in plasma physics and fusion science
- Profile of FRC research in the past 60 years...

Most Prominent Authors by the Decade*

- 1960s: D.R. Wells   (4)
- 1970s: I.R. Jones   (13)
- 1980s: M. Tuszewski   (25)
- 1990s: L.C. Steinhauer   (19)
- 2000-11: L.C. Steinhauer   (33)
  - Also significant contributions from R.D. Milroy (30) and A.L. Hoffman (28)

*as shown by the significantly lower number of citations for the earlier decades, this analysis is heavily biased because the limited number of articles in the database does not accurately represent the make-up of all articles published on FRCs at the time

Global Contributions to the Database

- Flinders University of Southern Australia- 13 articles, published from 1974-2002
- German institutions- 10 articles, published from 1965-2000, higher concentration in earlier years
- Russian institutions (mainly Budker Institute of Nuclear Physics)- 9 articles, published since 1997
- Japanese institutions (mainly University of Tsukuba)- total of 6 articles, 2 recent ones in 2005 and 2006
- University of New South Wales- 2 articles, 2007 and 2009

Other significantly Contributing Labs

- PPPL
- Lawrence Livermore National Lab
- Los Alamos
- University of California
- Redmond Plasma Physics Lab
- Cornell University
- Columbia University
- University of Colorado
- Prairie View

Some Significant Topics/Projects Discussed

Topic/Project	Years in which it was prevalent	Most prolific author(s)
Magnetic reconnection	1995-2011	M. Yamada
TCS - Upgrade	2008-2010	K.E. Miller, J.A. Grossnickle, A.L. Hoffman
RMF	1980-2010	W.N. Hugrass, A.L. Hoffman
Astron	1964-1980	N.C. Christofilos, Lovelace
Equilibrium reconstruction	2005-2006	Zakharov
Gas dynamic trap	2001-2007	Bagryansky, P.
FRC Stability (addressing tilt instability)	2002-2009	E.V. Belova