Really Mystified: Creating the Chemistry Sudden Selector Guide

Elizabeth Brown

Scholarly Communications and Library Grants Officer
Chemistry, Mathematics, Physics, Material Science Liaison
Binghamton University Libraries

August 22, 2012

Event hosted by ALCTS (Association for Library Collections & Technical Services)
About the Chemistry Sudden Selector Guide

1. How the project started and evolved
2. Highlights from the Guide: Lists, online tools, other reference tools
3. Selection advice
4. What’s on the horizon for chemistry collections
About Me

- Chemistry Librarian
- Reference, Collection Development, Instruction for Chemistry
- Scholarly Communications, Library Grants, Copyright
- Former Science Library manager
- Former chemist
How the Guide Evolved
A timeline

- 2004/2005: approached by Bob Nardini about the series
- 2005/2006: guide proposal accepted by ALCTS
- Various chapters and sections completed...
- 2009: Manuscript accepted by ALCTS
- 2010/2011: Edited, final manuscript submitted to ALCTS
- 2012: Guide published
The editorial process

- Wrote each chapter separately, in order
- Each chapter reviewed and approved by ALCTS
- Entire manuscript was then reviewed and approved by three ALCTS committees
- Final editing and publication process
Why so long?

- The series was new – scope and policy defined over time
- My job changed – two promotions
- Collection development has changed
- Growth of social media and scholarly communications in libraries
How the Guide (really) happened

URL: http://www.flickr.com/photos/usepagov/4683067150/sizes/n/in/photostream/ (US Government work)
The Challenge: Make Chemistry Interesting

Chemistry is a class you take in high school or college, where you figure out two plus two is 10, or something.

Dennis Rodman

Image Source: Author’s Collection
Another Challenge: Existing Chemical Information Guides

- Targeted to chemists/chemistry librarians
- Very comprehensive
- Specialized skills required (structure searching, patent information, subject knowledge)
- No guide for a non-chemist
- No guide for free resources in Chemistry
- No guides incorporating new social media channels
- No guides emphasizing selection/current awareness
Guide Highlights
Stewardship of Existing Collections

- Chemistry library community contributions
- Collection assessment and management
- Web, social and other tools
Chemistry Library
Community Contributions
Chemical Information Sources
(Indiana U.)

URL: http://en.wikibooks.org/wiki/Chemical_Information_Sources;
http://www.indiana.edu/~cheminfo/network.html (Gary Wiggins (ret.), Brian Winterman)
ThermoDex

ThermoDex Search
An Index of Selected Thermodynamic and Physical Property Resources

Select PROPERTIES you are looking for:

Common Properties:

- Boiling point
- Enthalpy
- Entropy
- Gibbs free energy
- Heat of vaporization
- Phase equilibrium
- Solubility
- Surface tension

Common Categories:

- Elements
- Hydrocarbons
- Inorganic
- Gases
- Liquids
- Organic

Found 20 entries:

Title: Evaluated kinetic data for high temperature reactions.

UT Call Number: QD 502 E9 1972B  
UT Location: CHEM REF

URL: http://www.lib.utexas.edu/thermodex/ (David Flaxbart)
BEILSTEIN'S HANDBOOK OF ORGANIC CHEMISTRY

A Guide to the Printed Beilstein

Series of the *Beilstein Handbook*, Fourth Edition
(began publication in 1918)

<table>
<thead>
<tr>
<th>Series</th>
<th>Abbreviation</th>
<th>Period of Literature Covered/Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Series</td>
<td>H</td>
<td>1830-1910 (German)</td>
</tr>
<tr>
<td>Supplementary Series I</td>
<td>E I</td>
<td>1910-1919 (German)</td>
</tr>
<tr>
<td>Supplementary Series II</td>
<td>E II</td>
<td>1920-1929 (German)</td>
</tr>
<tr>
<td>Supplementary Series III</td>
<td>E III</td>
<td>1930-1939 (German)</td>
</tr>
<tr>
<td>Supplementary Series III/IV</td>
<td>E III/IV</td>
<td>1930-1959 (German)</td>
</tr>
<tr>
<td>Supplementary Series IV</td>
<td>E IV</td>
<td>1950-1955 (German)</td>
</tr>
<tr>
<td>Supplementary Series V</td>
<td>E V</td>
<td>1960-1979 (English)</td>
</tr>
</tbody>
</table>

* Volumes 17 to 27 of Series E III and E IV are combined in a joint issue.

USEFUL TERMS

Gesamtregister = collective index
H = Hauptwerk (Basic Series)
Kp = beïng point
s. = p. (page)
Duke Libraries > Researching by Subject > Chemical and Physical Properties

Chemical and Physical Properties

Index of property names

Meghan Gamsby, Subject Librarian
411 Chapel Drive | meghan.gamsby@duke.edu | 919.660.1578

Follow the links here and in the sidebar for information about relevant chemistry Library. If you know of a resource which is not on the list but should be, please contact us.

You can find most of these topics in the online CRC Handbook of Chemistry & Technology.

See also Chemistry Library Resources web pages for other information about chemical and physical properties.

- Absorption Coefficient (c)
- Activation Energies
- Activity Coefficients (y)
- Boiling Point
- Bond Dissociation Energy (D_e)
- Bond Lengths/Bond Angles
- Conductance, Electrical (g)
- Conductivity, Thermal
- Conversion factors
- Critical Constants
- Crystal Structures
- Equilibrium Constant (K)
- Extinction Coefficient (e)
- Free Energy (G)
- Freezing Point
- Fundamental Physical Constants
- G-Factors
- Gibbs Free Energy (G)
- Heat Capacity
- Heat of Combustion
- Heat of Dilution

Meghan Gamsby, Subject Librarian
411 Chapel Drive | meghan.gamsby@duke.edu | 919.660.1578

Luminescence

Request via catalog for LSC 541.3 L258PA Gr.2 Bd.3 -- Zahlenwerte und Funktionen aus Naturwissenschaften und Technik. Neue Serie. Gr. 2 Bd. 3. Springer-Verlag. Luminescence of organic compounds

URL: http://library.duke.edu/research/subject-guides/chemical-physical-properties/ (Kitty Porter, Anne Langley, Megan Gamsby)
Information Competencies for Chemistry Undergraduates

Contents

Introduction
This document identifies the skills and knowledge chemistry undergraduates should develop in order to successfully navigate scientific and chemical literature, and will be well-prepared for graduate work or employment as a chemist.

Section 1
Big Picture: The Library And Scientific Literature
Outlines what chemistry undergraduates should know about the library and scientific literature.

Section 2
Chemical Literature
Expected skills and recommended resources for finding: background information; articles and other chemical literature; patents; chemical substances, reactions, and syntheses.

2012 Annual Conference, Chicago, July 14-19

Saturday, July 14
9:00am Chemistry for the Non-Chemist Librarian
6:00pm Division Board Meeting
8:00pm DCHE No Host Dinner

Sunday, July 15
9:00am Chemical Information Sources, Requests, and Reference
1:00pm Extreme Structure Searching

URL: http://chemistry.sla.org/
Collection Assessment and Development
Core Monographic Book Series

- List of chemistry-related book series from major publishers
- Designed to assist with approval plan profiles and book purchases

### Karger
- Röhm's Synthetic Methods of Organic Chemistry (Synthetische Methoden der organischen Chemie)

### McGraw-Hill
- McGraw-Hill Series in Advanced Chemistry
- McGraw-Hill Series in Chemistry
- McGraw-Hill Handbooks

### Oxford University Press (OUP)
- Topics in Organic Chemistry
- Topics in Environmental Chemistry
- Practical Approach in Chemistry Series
- Oxford Chemistry Masters
- Oxford Chemistry Primer in Physical Chemistry
- Oxford Chemistry Primer in Inorganic Chemistry
- Oxford Chemistry Primer in Organic Chemistry
- Oxford Chemistry Primer in Chemical Engineering
- Oxford Chemistry Primer in General Chemistry

### Royal Society of Chemistry (RSC)
- Comprehensive Series in Photochemical & Photobiological Sciences
- Monographs in Supramolecular Chemistry
- RSC Analytical Spectroscopy Monographs
- RSC Chromatography Monographs
- RSC Materials Monographs
- RSC Nanoscience and Nanotechnology Series
- Tutorial Chemistry Texts

### Springer / Kluwer
- Advances in Polymer Science
- Modern Aspects of Electrochemistry
- Springer Series in Chemical Physics
- Springer Series on Chemical Sensors and Biosensors
- Structure and Bonding
- Topics in Current Chemistry
- Topics in Heterocyclic Chemistry
Core Chemistry Journal Lists


- Web of Science Journal Citation Reports lists for Chemistry-Related Subdisciplines (2008 Edition)

- Lists were organized by chemistry subdiscipline

- Tool to analyze local journal collections
- Tool to budget for newer journals and research areas

**Nanoscience and Nanotechnology**
- ACS Nano
- Biomedical Microdevices
- Biomicrofluidics
- Biosensors & Bioelectronics
- Current Nanoscience
- Journal of Physical Chemistry C
- Journal of Micromechanics and Microengineering
- Journal of Nanoparticle Research
- Lab on a Chip
- Microfluidics and Nanofluidics
- Microporous and Mesoporous Materials
- Nanomedicine
  - *Nano Letters
  - Nano Today
  - Nanotechnology
  - Nanotoxicology
  - Nature Nanotechnology
  - Plasmonics
  - Scripta Materialia
  - Small

**Organic Chemistry**
- Advances in Carbohydrate Chemistry and Biochemistry
  - *Advances in Heterocyclic Chemistry
  - Advances in Organometallic Chemistry
  - *Advanced Synthesis & Catalysis
  - Aldrichimica acta
  - *Bioconjugate Chemistry
  - *Biomacromolecules
  - *Bioorganic Chemistry
  - Bioorganic & Medicinal Chemistry
  - *Current Organic Chemistry
  - *European Journal of Organic Chemistry
  - *Journal of Organic Chemistry
  - *Journal of Organometallic Chemistry
  - *Journal of Organic Chemistry"
Preprints and Preprint Servers

• Chemistry has less activity with pre-prints

• Some sources are inactive

PREPRINTS AND PREPRINT SERVERS

The use of preprints and preprint servers in chemistry has recently evolved, and the number of resources continues to grow with the ongoing trends in scholarly publishing and information sharing. While these sites are more popular with other areas of the sciences and mathematics, academic chemistry researchers in some research areas are active preprint depositors and sharers.


arXiv is a fully automated electronic archive and distribution server for research papers in many areas of physics and the physical sciences. Begun in 1991 at Los Alamos National Laboratory (LANL) by Paul Ginsparg, it is currently housed at Cornell University Libraries and contains more than 600,000 items. A mirror site is also available at http://xxx.lanl.gov/.


Contains links to current and archived preprints in chemical physics and theoretical chemistry research.


An archive of chemistry, mathematics and computer science research preprints and experimental data. Coverage ends at 2004 and is freely available by registering on chemweb.com.

Web, social and other tools for Chemistry
Structure Drawing Tools

Advanced chemical drawing software
MarvinSketch is an advanced chemical editor for drawing chemical structures, queries and reactions

Download Marvin Suite
Sketch/Space/View – Ver 5.10.3

Try online!
- Brochure
- Technical presentation
- Product related articles in the Library

JME Molecular Editor 😊

Symyx Draw
Free Download
Safe download

ChemDraw

URLs: http://www.molinspiration.com/jme/;
Spectroscopy Sources

UV/Visible spectrum

Current usage is:
Registered Users: 342
Structures: 41289
Spectra: Measured 49199, calculated 549

Impressum

URL: http://webbook.nist.gov/cgi/cbook.cgi?Name=cyclohexane&Units=SI&cUV=on; http://nmrshiftdb.nmr.uni-koeln.de/;
Database Vendor Support

Book, Software Reviews

Chemistry Resources on the Internet

Charles F. Huber
Dawson Library
University of California
Santa Barbara, CA 93106

URLs: http://pubs.acs.org/journal/jcisd8/
Social Media - Blogs

petermr's blog
A Scientist and the Web

ChemConnector Blog

Useful Chemistry

ChemBark
A Blog About Chemistry & Chemical Research

The scope of this blog is the world of chemistry and chemical research. Common subjects of discussion include ideas, experiments, data, publications, writing, education, current events, lab safety, scientific policy, academic politics, history, and trivia.

Book of Trogool

Guide Content

- Cost of materials
- Time Management
- Publishing cycles and trends
- Approval plans
- Dealing with interdisciplinary work
Chemistry Materials are Expensive!

- Read reviews
- Look at Worldcat, YBP sales, and other holdings data
- Look for discounts
- Prioritize faculty requests
- Don’t be afraid to buy ebooks, especially for reference
Develop a system for tracking expenses, faculty requests

<table>
<thead>
<tr>
<th>Title of Item</th>
<th>Format</th>
<th>Producer of Item</th>
<th>Vendoring information</th>
<th>One-Time Cost</th>
<th>Ongoing Cost</th>
<th>Name/Abb. of requester</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angewandte Chemie backflies</td>
<td>Journal Archives</td>
<td>Wiley</td>
<td>Wiley</td>
<td>$11,000.00</td>
<td></td>
<td>Arnold, W succès (Chemistry)</td>
<td>2005 quote (Wiley)</td>
</tr>
<tr>
<td>ChemCatChem</td>
<td>Journal</td>
<td>Wiley</td>
<td>Wiley</td>
<td>$3,146.00</td>
<td></td>
<td>Zhong, Xing (Chemistry)</td>
<td>2012 web site info</td>
</tr>
<tr>
<td>Chemical and Engineering News Archive (C&amp;E News)</td>
<td>Trade Publication</td>
<td>American Chemical Society (ACS)</td>
<td>ACS</td>
<td>$13,500.00</td>
<td>$300.00</td>
<td>Zhong, Xing (Chemistry)</td>
<td>2013 web site info</td>
</tr>
<tr>
<td>ChemNetBase</td>
<td>Journal</td>
<td>Taylor and Francis</td>
<td>Taylor and Francis</td>
<td>$5,686.00</td>
<td></td>
<td>Zhong, Xing (Chemistry)</td>
<td>2013 web site info</td>
</tr>
<tr>
<td>ChemPhysChem</td>
<td>Journal</td>
<td>Thomson Reuters</td>
<td>Thomson Reuters</td>
<td>$2,806.00</td>
<td></td>
<td>Zhong, Xing (Chemistry)</td>
<td>2013 web site info</td>
</tr>
<tr>
<td>Conference Proceedings Citation Index</td>
<td>Abstract and Index</td>
<td>Thomson Reuters</td>
<td>Thomson Reuters</td>
<td>$10,929.00</td>
<td></td>
<td>Zhong, Xing (Chemistry)</td>
<td>2013 web site info</td>
</tr>
<tr>
<td>INSPEC Archive</td>
<td>Journal</td>
<td>Thomson Reuters</td>
<td>Thomson Reuters</td>
<td>$12,000.00</td>
<td></td>
<td>Zhong, Xing (Chemistry)</td>
<td>2013 web site info</td>
</tr>
<tr>
<td>Journal of Applied Crystallography</td>
<td>Journal</td>
<td>Elsevier</td>
<td>Elsevier</td>
<td>$21,281.00</td>
<td>$0.00</td>
<td>Elsevier</td>
<td>Elsevier 2011</td>
</tr>
<tr>
<td>Journal of Nanoscience and Nanotechnology</td>
<td>Journal</td>
<td>American Scientific Publishers</td>
<td>American Scientific Publishers</td>
<td>$749.00</td>
<td>Mails (Physics)</td>
<td>2011 web site info</td>
<td></td>
</tr>
<tr>
<td>Journal of Vacuum Science and Technology A+B</td>
<td>Journal</td>
<td>American Institute of Physics (AIP)</td>
<td>AIP</td>
<td>$1,695.00</td>
<td>Zhong, Xing (Chemistry)</td>
<td>2013 web site info</td>
<td></td>
</tr>
<tr>
<td>Logic: Journal of the IGPL</td>
<td>Journal</td>
<td>Oxford University Press</td>
<td>Wiley</td>
<td>$1,153.00</td>
<td></td>
<td>Guzman, Math (Math)</td>
<td>2011 web site info</td>
</tr>
<tr>
<td>Magnetic Resonance In Chemistry</td>
<td>Journal</td>
<td>Wiley</td>
<td>Wiley</td>
<td>$1,786.00</td>
<td></td>
<td>Zhong, Xing (Chemistry)</td>
<td>2013 web site info</td>
</tr>
<tr>
<td>Materials Research Society (MRS) Online Proceedings</td>
<td>Journal</td>
<td>MRS</td>
<td>MRS</td>
<td>$5,922.00</td>
<td></td>
<td>MRS</td>
<td>2011 web site info</td>
</tr>
<tr>
<td>Nature Chemical Biology</td>
<td>Journal</td>
<td>Nature Publishing Group (NPG)</td>
<td>NPG, NPG, other consortia</td>
<td>$5,771.00</td>
<td>Bane (Chemistry)</td>
<td>3,000 web site info (100% MRS discount)</td>
<td></td>
</tr>
<tr>
<td>Nature Methods</td>
<td>Journal</td>
<td>Nature Publishing Group (NPG)</td>
<td>NPG, NPG, other consortia</td>
<td>$4,615.00</td>
<td>Bane (Chemistry)</td>
<td>3,000 web site info (100% MRS discount)</td>
<td></td>
</tr>
<tr>
<td>Nature Nanotechnology</td>
<td>Journal</td>
<td>Nature Publishing Group (NPG)</td>
<td>NPG, NPG, other consortia</td>
<td>$4,615.00</td>
<td>White, Mails (Physics)</td>
<td>3,000 web site info (100% MRS discount)</td>
<td></td>
</tr>
<tr>
<td>Nature Photonics</td>
<td>Journal</td>
<td>Nature Publishing Group (NPG)</td>
<td>NPG, NPG, other consortia</td>
<td>$4,297.00</td>
<td>Mails (Physics)</td>
<td>3,000 web site info (100% MRS discount)</td>
<td></td>
</tr>
<tr>
<td>Nature Physics</td>
<td>Journal</td>
<td>Nature Publishing Group (NPG)</td>
<td>NPG, NPG, other consortia</td>
<td>$4,815.00</td>
<td>White, Mails (Physics)</td>
<td>3,000 web site info (100% MRS discount)</td>
<td></td>
</tr>
<tr>
<td>Project Euclid Prime</td>
<td>Journal Collection</td>
<td>Correlated Utility Library / Duke University Press</td>
<td>Project Euclid</td>
<td>$3,296.00</td>
<td></td>
<td></td>
<td>2011 web site info</td>
</tr>
<tr>
<td>Royal Society of Chemistry backfiles</td>
<td>Journal Archives</td>
<td>Royal Society of Chemistry (RSC)</td>
<td>RSC</td>
<td>$61,173.00</td>
<td>$1,100.00</td>
<td>Bane (Chemistry)</td>
<td>2011 web site info</td>
</tr>
<tr>
<td>Science of Synthesis</td>
<td>Handbook Series</td>
<td>Theime</td>
<td>Theime</td>
<td>$8,879.00</td>
<td></td>
<td></td>
<td>2010 price quote</td>
</tr>
<tr>
<td>Zentralblatt MATH</td>
<td>Journal</td>
<td>Springer</td>
<td>Springer</td>
<td>$36,655.00</td>
<td>Mails (Physics)</td>
<td>2007 quote (SPIE)</td>
<td>currency conversion (7200 €)</td>
</tr>
<tr>
<td>ChemBioChem</td>
<td>Journal</td>
<td>Wiley</td>
<td>Wiley</td>
<td>$2,806.00</td>
<td></td>
<td>Bane (Chemistry)</td>
<td>2011 web site info</td>
</tr>
</tbody>
</table>

Source: Author’s collection
Look at your “junk” mail from publishers
Interdisciplinary work

- GOBI Standard Search: Interdisciplinary Topics

- GOBI Standard Search: Title, Series Title, Subject Heading Search

URL: http://www.gobi3.com/hx/Falcon.ashx?location=searchstandardparms
What’s on the horizon for chemistry collections?
More unique identifiers

Create more robust internet search tools for chemical structures

- InChIKeys, InChIResolvers, SMILES to search chemical structures online
- Jmol for 3-D chemical structure images
- ORCID, ResearcherID, Scopus author identifiers

Brown, Elizabeth A. (Elizabeth A. Brown)

<table>
<thead>
<tr>
<th>Personal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Other formats</td>
</tr>
<tr>
<td>Author ID</td>
</tr>
<tr>
<td>Affiliation</td>
</tr>
</tbody>
</table>

Integrating free and licensed data

- Wikipedia Chemistry, Common Chemistry (CAS)
- Chemspider API
- Open Notebook Science
- Shared Data Sites

Semantic Web Applications

- Project Prospect Dublin Core metadata, InChI resolvers (RSC)
- Chemistry Add-in (Microsoft Research)

URL: http://www.rsc.org/Publishing/Journals/ProjectProspect/Examples.asp;
Collection costs and sustainability

- Shared Academic Collections
- Purchase on Demand
- New publishing models (PLoS, Open Access)

More information is in the guide:

URL: http://www.alastore.ala.org/detail.aspx?ID=3857
Thank You

- Binghamton University Colleagues
- Chemistry Librarian colleagues in ACS and SLA
- Chemistry and science faculty collaborators
- Scholarly communications library community
- Doug Litts and Helene Williamson
- Bob Nardini (Coutts)
- ALCTS