JORNADA SOBRE eBOOKS:

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Thomas Mager, Karin Sora

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Overview

- LB – Figures and Facts
- What is Springer Materials? Content – Platform
- Use Case – How Springer Materials / LB Helps Researchers
- Competition
- Customers
- New Business Model
- Take-away Points

Landolt-Börnstein: Figures and Facts

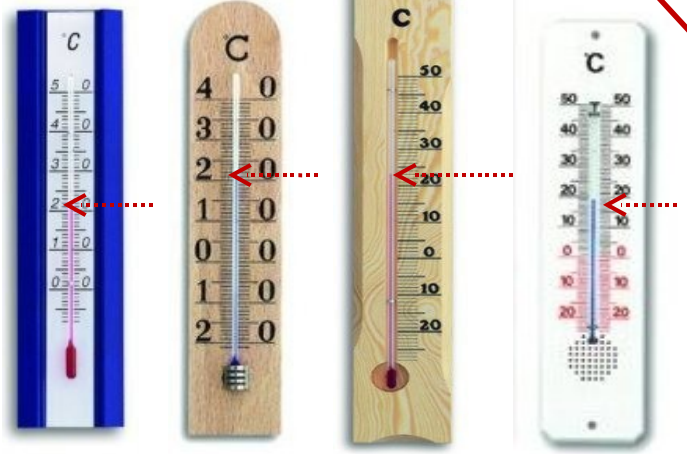
- Data collection equivalent to >180,000 pages in 55,000 online documents (extracted from 365 printed volumes)
- >120,000 figures; >1 Mio literature references; 65,000 keywords
- >150,000 chemical substances; >72,000 element systems; >530,000 substance-property pairs; nearly 1,5 Mio synonyms
- Fully international in scope and coverage, the contents have been written and quality-checked by thousands of top scientists
- A systematic & comprehensive evaluation of selected and critically assessed data in all areas of physical sciences & engineering

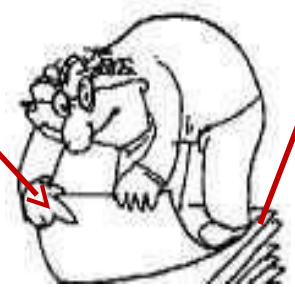
Current Landolt-Börnstein:

- 19 printed volumes published each year; complicated web access through Springer.com

What means “critically evaluated”?

Temperature measurements





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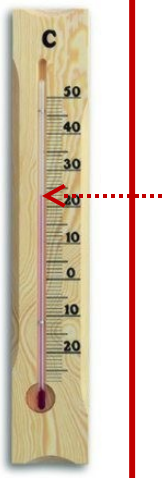
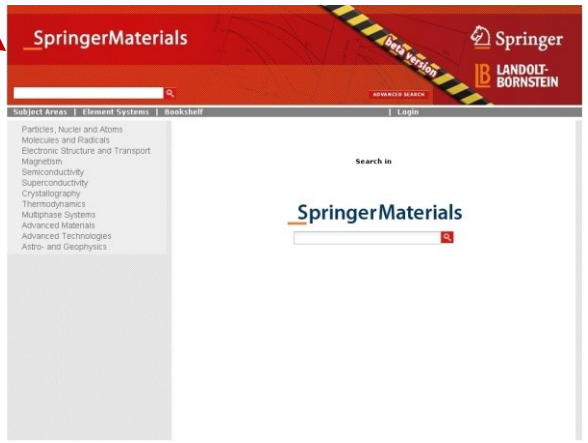




Paper 1, published by Springer the language of science

Paper 2, published by WILEY

Paper 3, published by Springer the language of science

Paper 4, published by ELSEVIER

Editors & Authors

- Pick best results
- Describe optimal experimental set-up
- Explain best practise
- Give physico-chemical background information

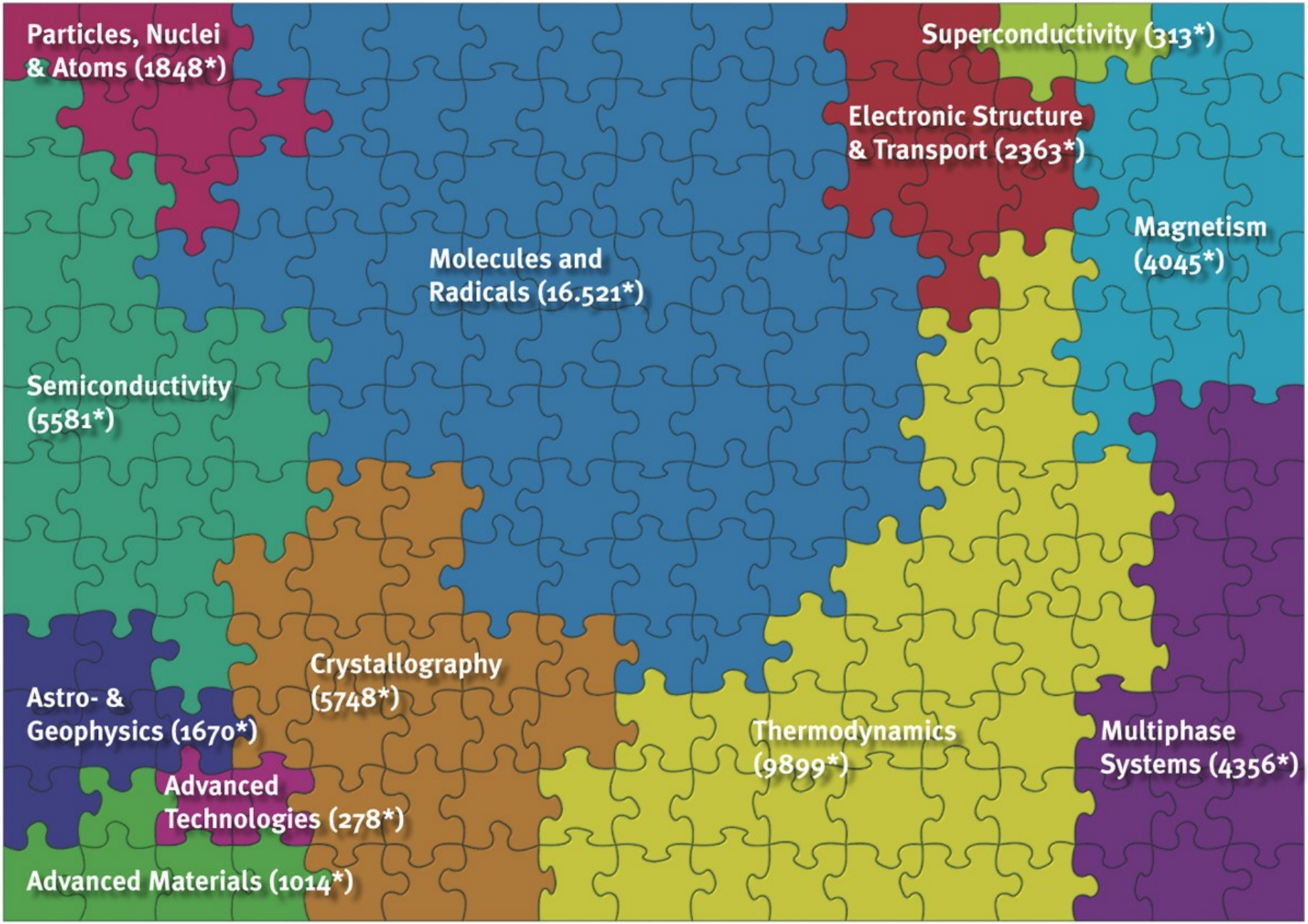
- Hammering Man in Frankfurt

OR

- 180,000 pages = 365 LB

  Vols. = 23 m piled up

LB – Subject Areas



*) number of pdf documents (in total 53.636 documents)

LB Usability Study - Recommendations

Relaunch as a stand-alone site!

- **one particular portal**
- **a dedicated website** rather than SpringerLink only
- a **simpler URL**
- **the** existing online **platform is too oriented towards the print format**

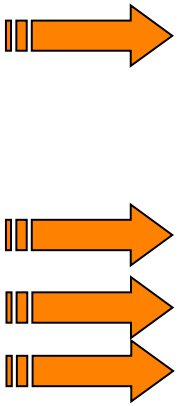
Google-like search!

- **table-of-content search, keyword search**
- Search results: **direct access to LB data**
- Search functions **prominently located**
- **sorting of hits by relevance**

Lessons learned

Customer demand

- Affordability!
- Findability!
- Usability!
- Interactivity!
- Completeness!
- Quality!



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highly attractive price

New one-stop web platform

Huge database with constant updating

World-class content, authors and editors

What's new?

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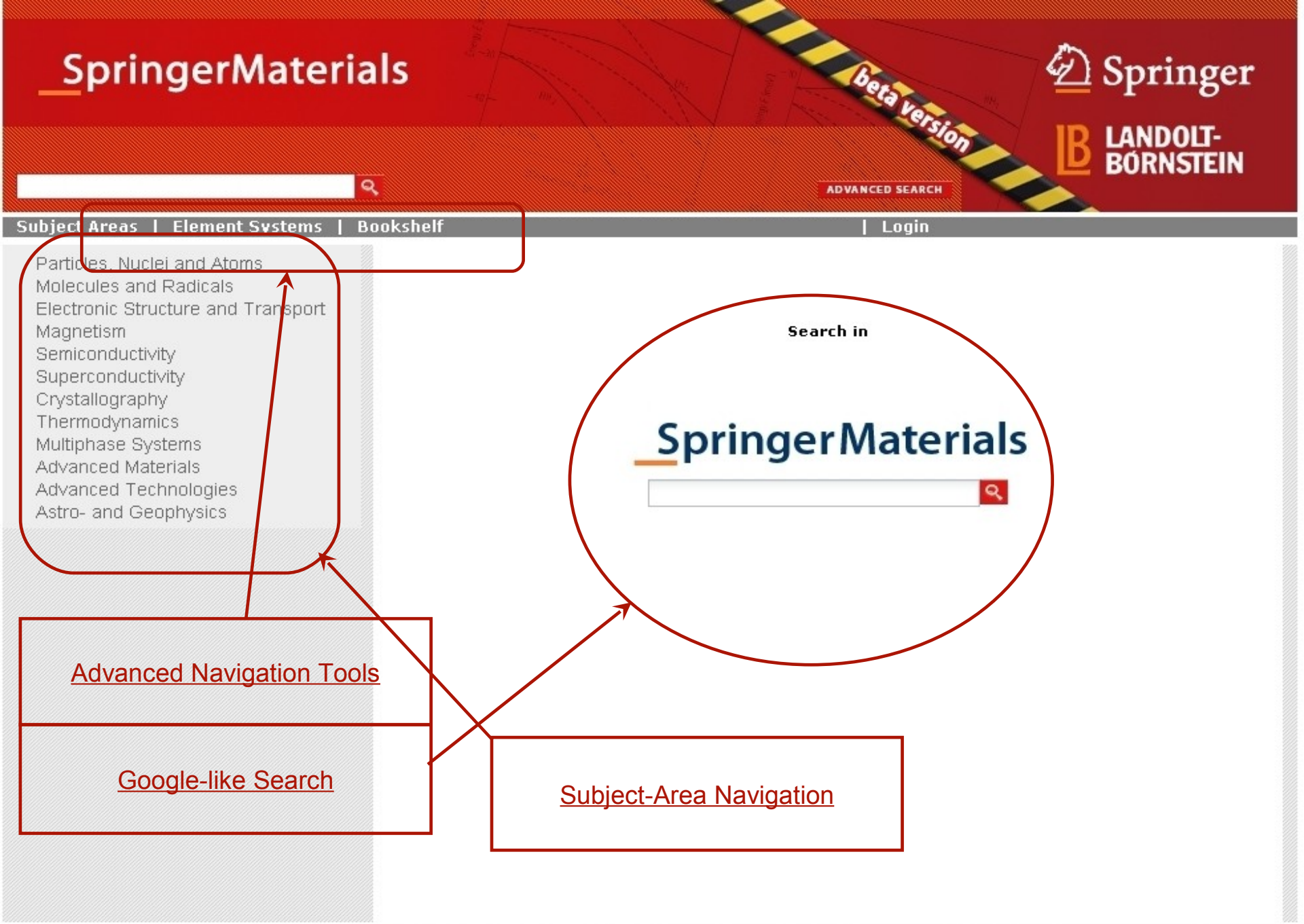
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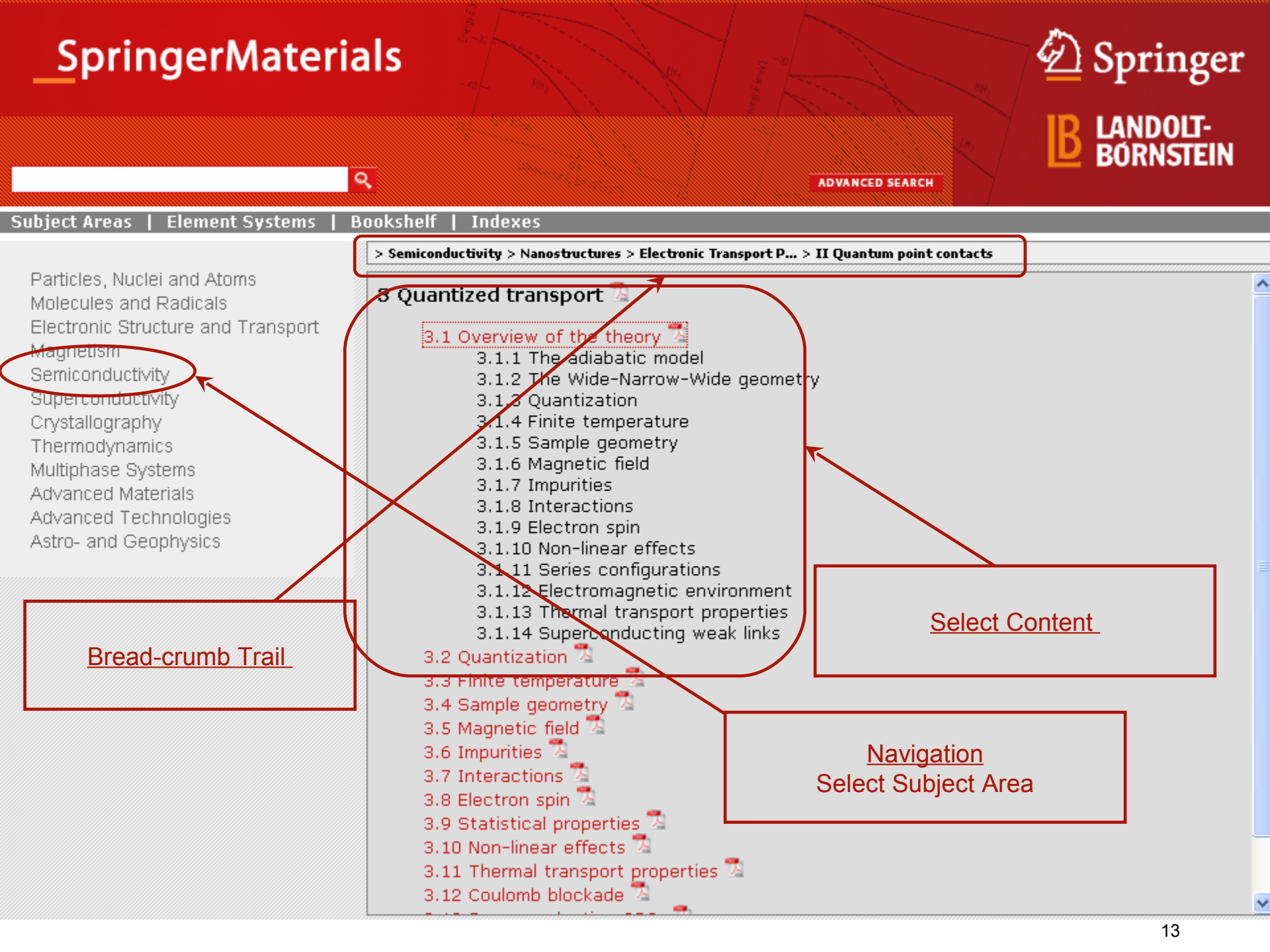
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Superconductivity
Crystallography
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Multiphase Systems
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Astro- and Geophysics
3 Quantized transport
3.1 Overview of the theory
3.1.1 The adiabatic model
3.1.2 The Wide-Narrow-Wide geometry
3.1.3 Quantization
3.1.4 Finite temperature
3.1.5 Sample geometry
3.1.6 Magnetic field
3.1.7 Impurities
3.1.8 Interactions
3.1.9 Electron spin
3.1.10 Non-linear effects
3.1.11 Series configurations
3.1.12 Electromagnetic environment
3.1.13 Thermal transport properties
3.1.14 Superconducting weak links
3.2 Quantization
3.3 Finite temperature
3.4 Sample geometry
3.5 Magnetic field
3.6 Impurities
3.7 Interactions
3.8 Electron spin
3.9 Statistical properties
3.10 Non-linear effects
3.11 Thermal transport properties
3.12 Coulomb blockade
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Search results

Results 1 - 1 of 1 (16 hits)

Astro- and Geophysics > Astrophysics > Stars and Star Clusters > 5 Special types of stars

5.6.3 Pulsating X-ray sources

...Filled circles correspond to the banana state, open circles to the island ...
...different states can be given: Banana state (B) The banana state is ...
...being observed recurrently in the banana state show banana branches with ...

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Number of documents found

Search results

Results 11 - 20 of 460 (1480 hits)

Semiconductivity > Semiconductors > Non-Tetrahedrally Bonded and Binary Compounds

Titanium oxide (TiO2): crystal structure, lattice parameters and related parameters of anatase

Titanium oxide (TiO2): crystal structure, lattice parameters and related ...
...ElementSystem -> O-Ti Substance -> Titanium oxide (TiO2) Property -> crystal ...
...Substance -> TiO2 Substance -> Titanium oxide Substance -> Titanium Dioxide ...

Semiconductivity > Semiconductors > Non-Tetrahedrally Bonded and Binary Compounds

Titanium oxide (TiO2): point defect thermodynamics in pure n-type TiO(2-x) (rutile)

Titanium oxide (TiO2): point defect thermodynamics in pure n-type TiO(2-x) ...
...ElementSystem -> O-Ti Substance -> Titanium oxide (TiO2) Property -> point ...
...Substance -> TiO2 Substance -> Titanium oxide Substance -> Titanium Dioxide ...

Semiconductivity > Semiconductors > Non-Tetrahedrally Bonded and Binary Compounds

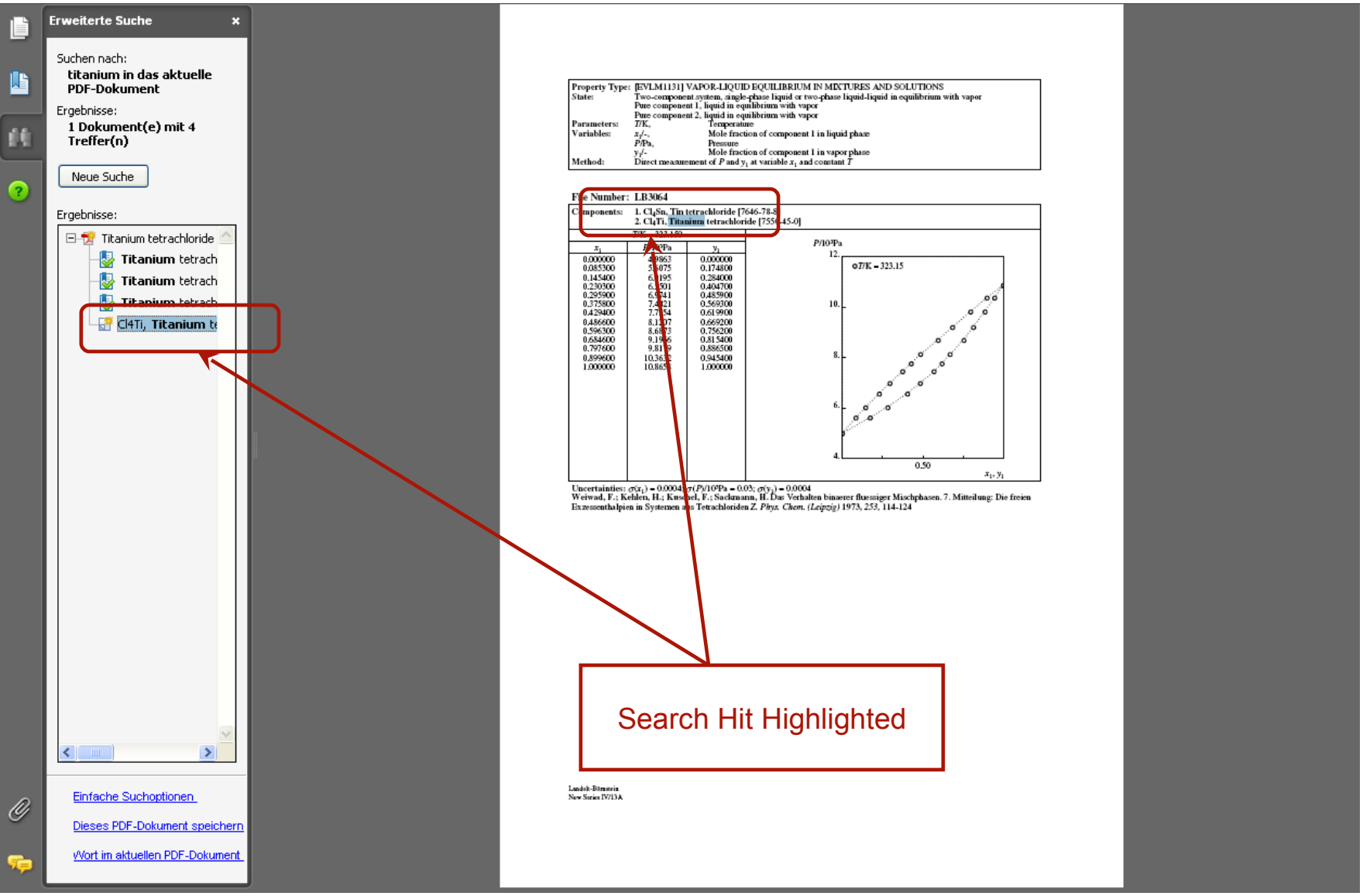
Titanium oxide (TiO2): physical properties of anatase

Titanium oxide (TiO2): physical properties of anatase ElementSystem
-> O-Ti Substance -> Titanium oxide (TiO2) Property -> physical properties ...
...Substance -> TiO2 Substance -> Titanium oxide Substance -> Titanium Dioxide ...

Particles, Nuclei and Atoms > Nucleons and Nuclei > Low-Energy Neutron Interactions > Subvolume A2 _ Low Energy Neutrons and their Interaction with Nuclei and Matter. Part 2 > 13 Neutron induced threshold reactions > 13.3 Excitation functions > Target Elements

Excitation functions for titanium isotopes

Excitation functions for titanium isotopes 13 Neutron induced threshold ...
...reactions Excitation functions for titanium isotopes Fig. Reaction 117 46Ti(n,p)46Sc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Ergebnisse:
Titanium tetrachloride
Titanium tetrach
Titanium tetrach
Titanium tetrach
Cl4Ti, Titanium te
Einfache Suchoptionen
Dieses PDF-Dokument speichern
Wort im aktuellen PDF-Dokument
Property Type: [EVLM1131] VAPOR-LIQUID EQUILIBRIUM IN MIXTURES AND SOLUTIONS
State:
Two-component system, single-phase liquid or two-phase liquid-liquid in equilibrium with vapor
Pure component 1, liquid in equilibrium with vapor
Pure component 2, liquid in equilibrium with vapor
Parameters: T/K, Temperature
Variables: x1/-, Mole fraction of component 1 in liquid phase
P/Pa, Pressure
y1/- Mole fraction of component 1 in vapor phase
Method: Direct measurement of P and y1 at variable x1 and constant T
File Number: LB3064
Components:
1. Cl4Sn, Tin tetrachloride [7646-78-8]
2. Cl4Ti, Titanium tetrachloride [7550-45-0]
T/K = 323.150
x1 P/10³Pa y1
0.000000 4.9863 0.000000
0.085300 5.6075 0.174800
0.145400 6.0195 0.284000
0.230300 6.2501 0.404700
0.295900 6.9241 0.485900
0.375800 7.4021 0.569300
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0.596300 8.6873 0.756200
0.684600 9.1906 0.815400
0.797600 9.8112 0.886500
0.899600 10.3632 0.945400
1.000000 10.8653 1.000000
P/10³Pa
T/K = 323.15
x1, y1
Uncertainties: σ(x1) = 0.0004; σ(P/10³Pa = 0.03; σ(y1) = 0.0004
Weiwad, F.; Kehlen, H.; Kuschel, F.; Sacknann, H. Das Verhalten binaerer fluessiger Mischphasen. 7. Mitteilung: Die freien Exzessenthalpien in Systemen aus Tetrachloriden Z. Phys. Chem. (Leipzig) 1973, 253, 114-124
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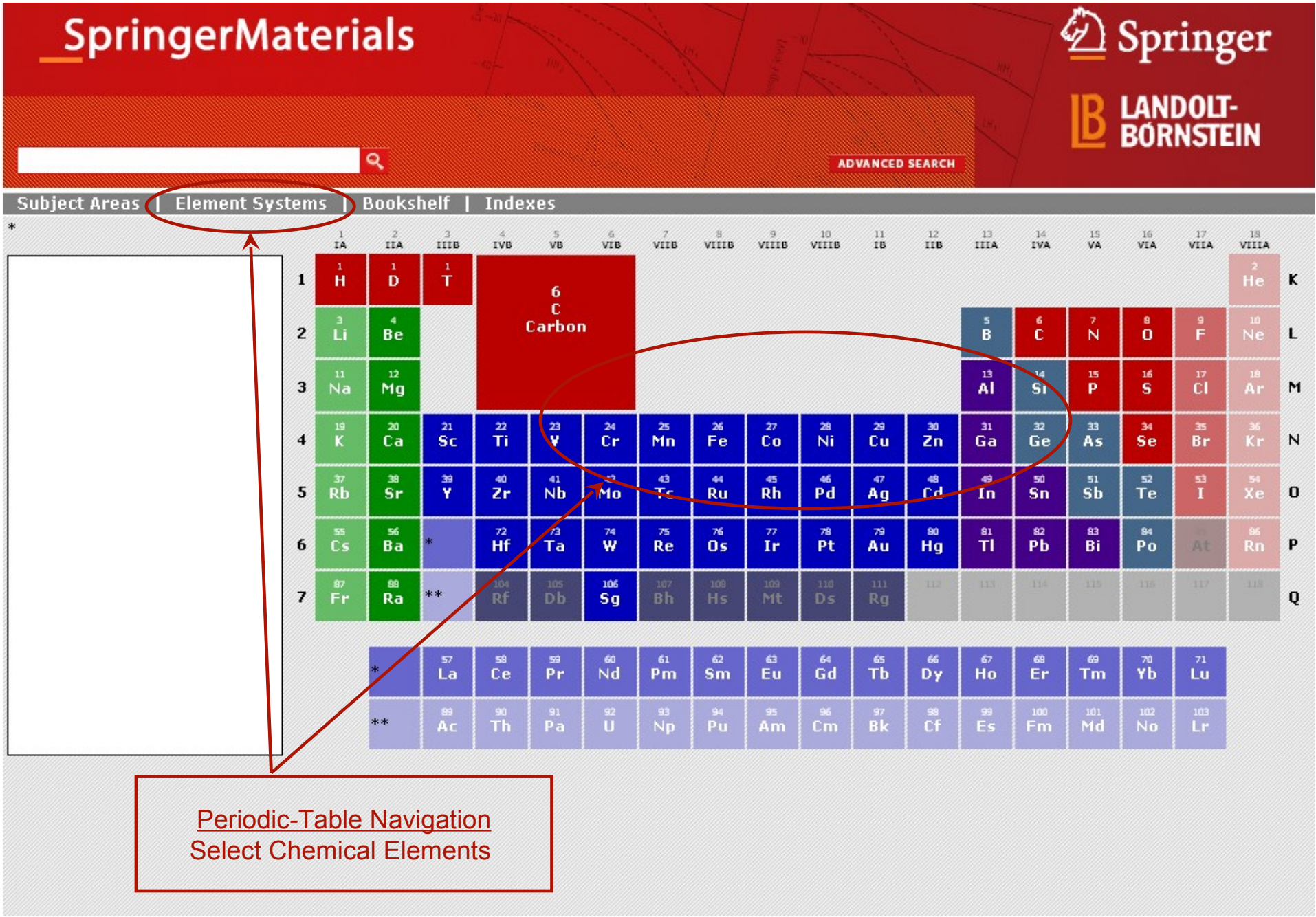
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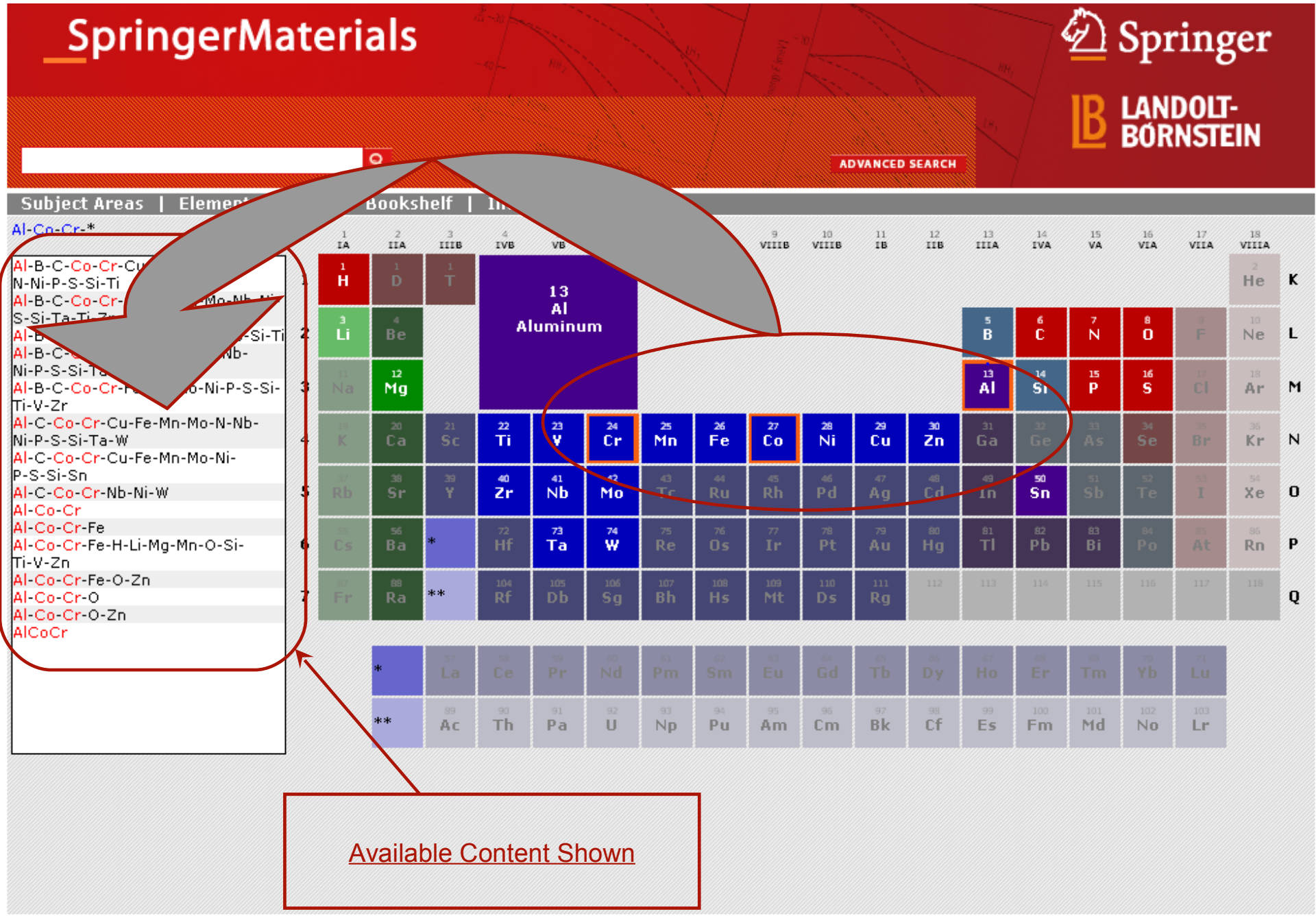
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13 Al Aluminum
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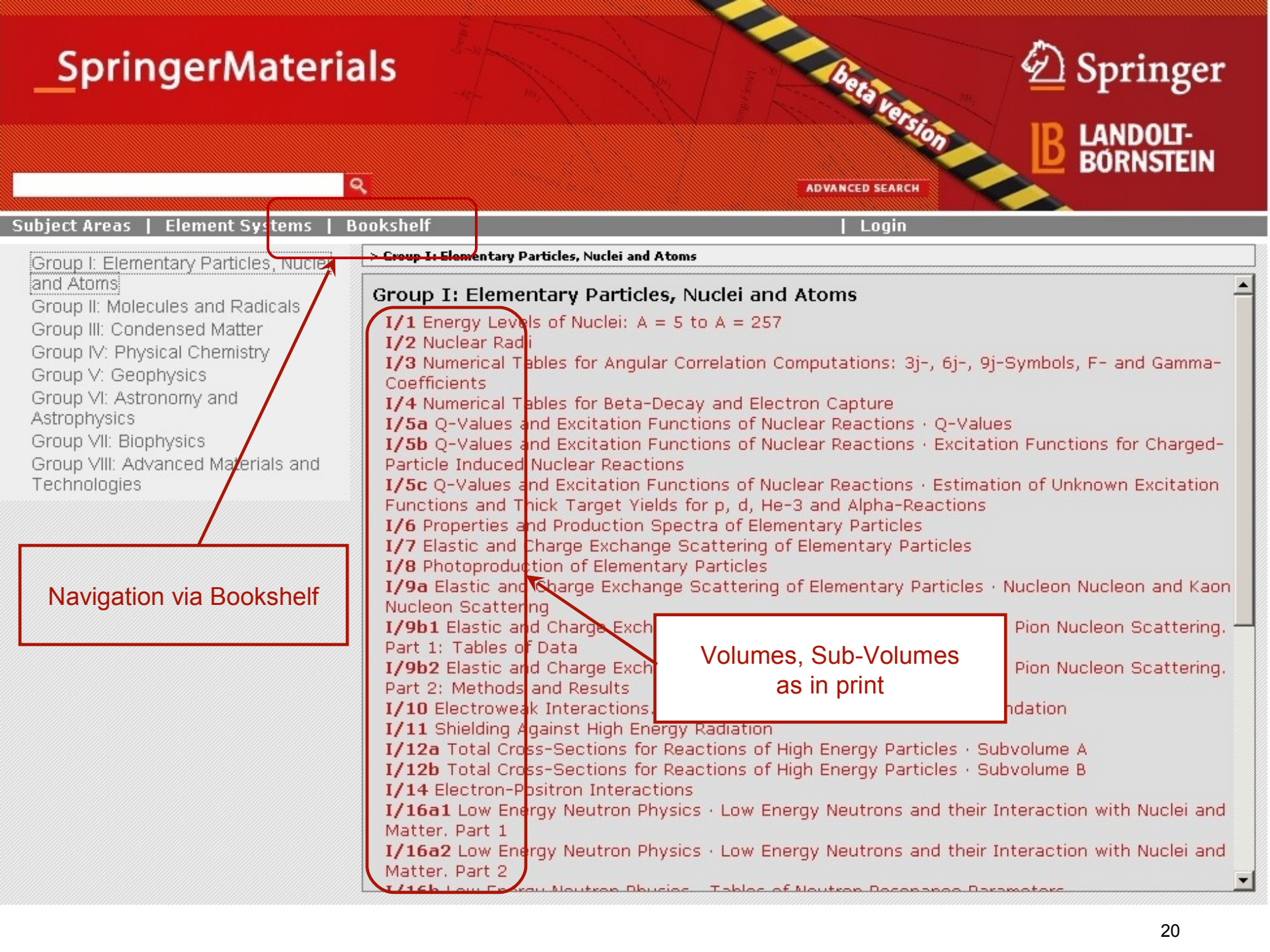
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I/12b Total Cross-Sections for Reactions of High Energy Particles · Subvolume B
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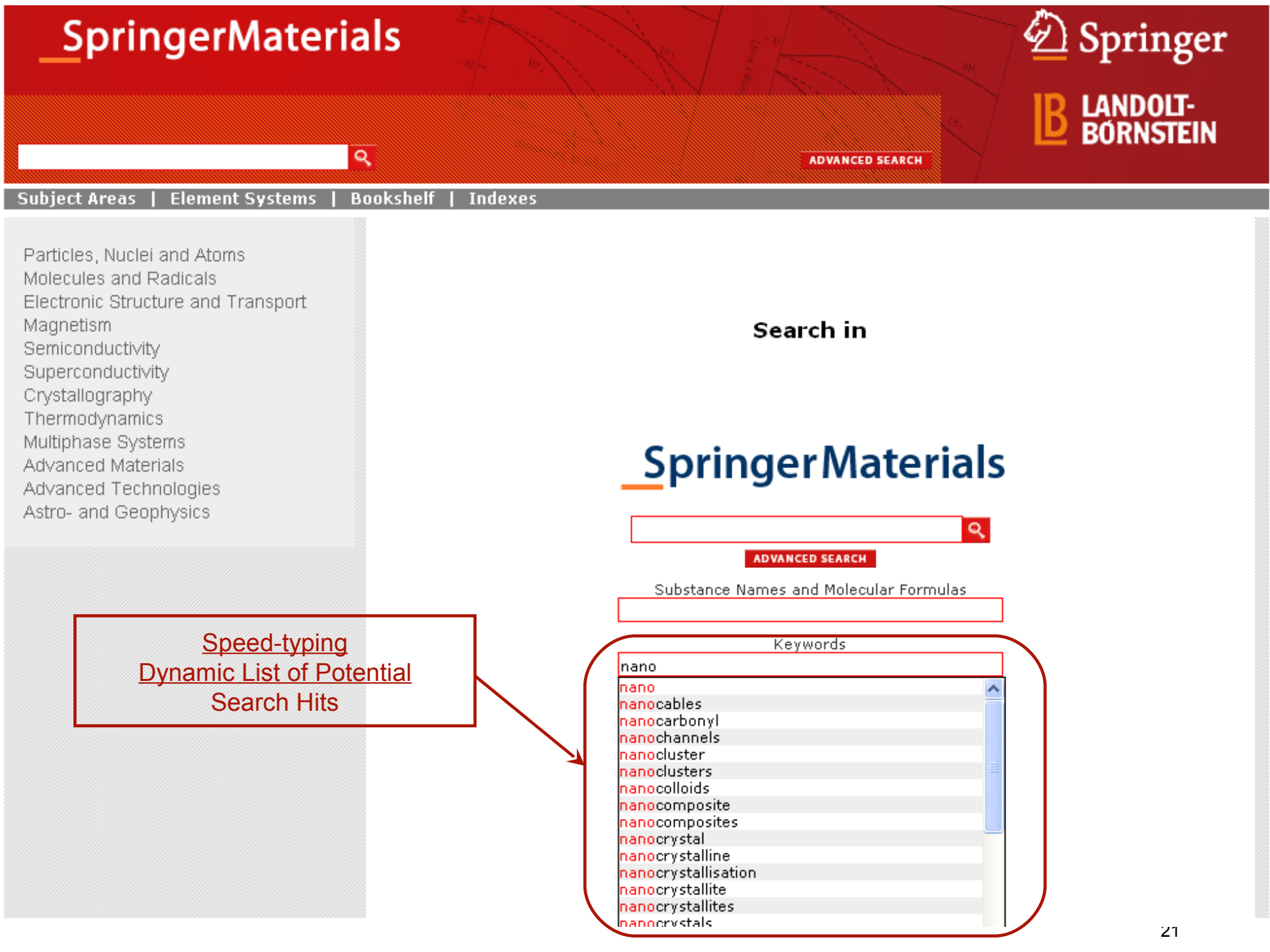
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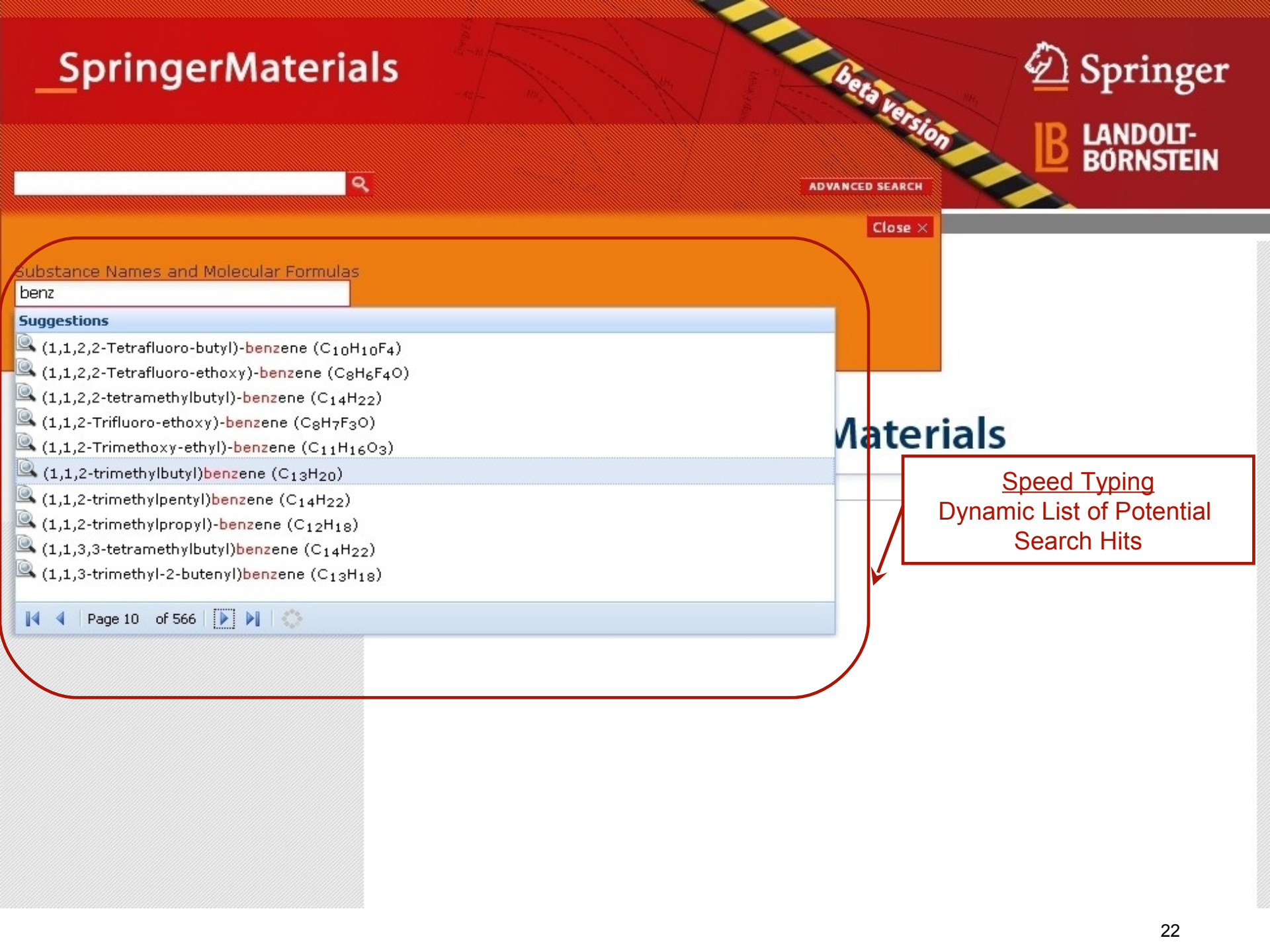
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(1,1,2,2-Tetrafluoro-butyl)-benzene ($C_{10}H_{10}F_4$)
(1,1,2,2-Tetrafluoro-ethoxy)-benzene ($C_8H_6F_4O$)
(1,1,2,2-tetramethylbutyl)-benzene ($C_{14}H_{22}$)
(1,1,2-Trifluoro-ethoxy)-benzene ($C_8H_7F_3O$)
(1,1,2-Trimethoxy-ethyl)-benzene ($C_{11}H_{16}O_3$)
(1,1,2-trimethylbutyl)benzene ($C_{13}H_{20}$)
(1,1,2-trimethylpentyl)benzene ($C_{14}H_{22}$)
(1,1,2-trimethylpropyl)-benzene ($C_{12}H_{18}$)
(1,1,3,3-tetramethylbutyl)benzene ($C_{14}H_{22}$)
(1,1,3-trimethyl-2-butenyl)benzene ($C_{13}H_{18}$)
Page 10 of 566
Speed Typing
Dynamic List of Potential
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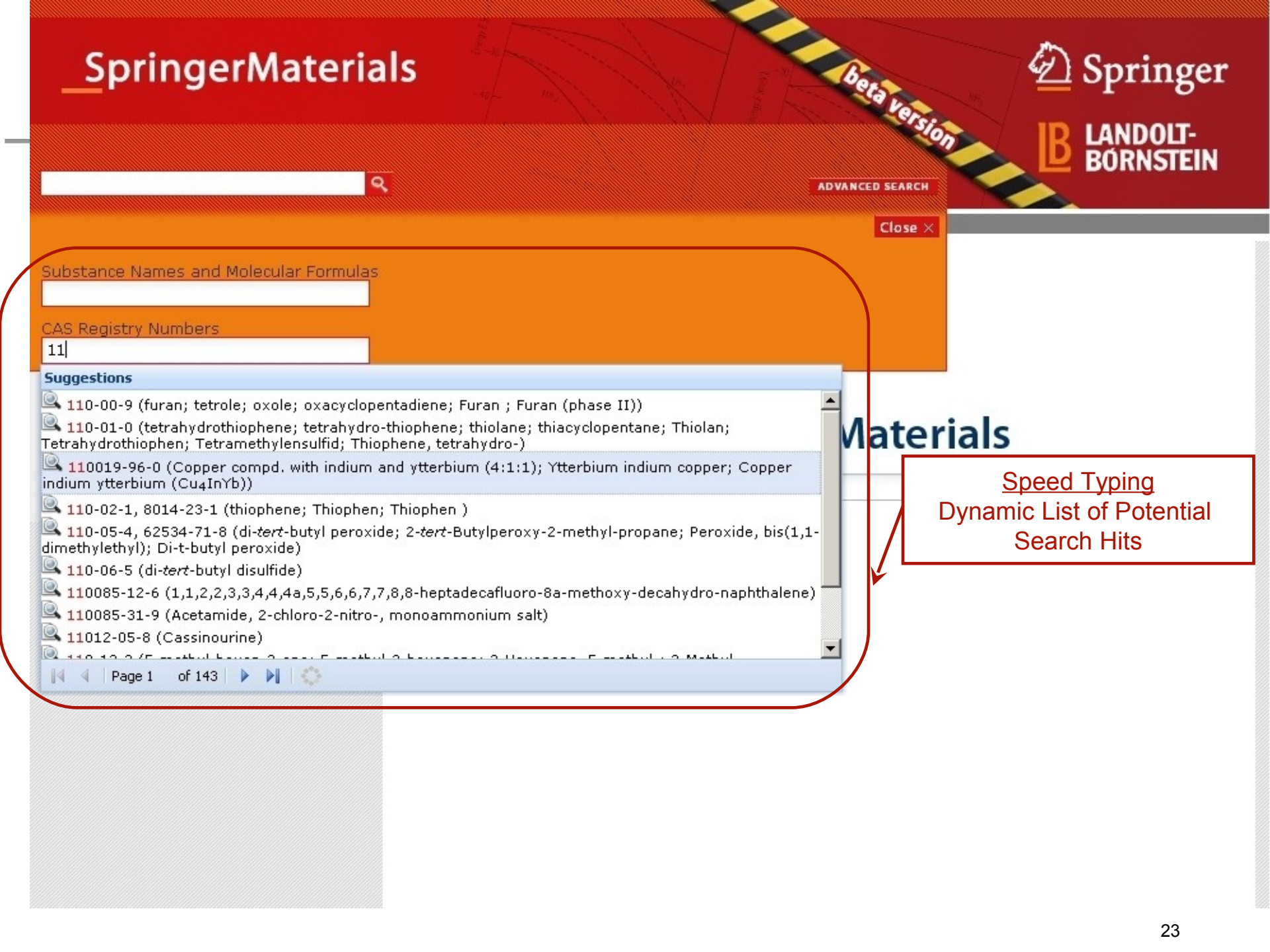
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CAS Registry Numbers
11
Suggestions
110-00-9 (furan; tetrole; oxole; oxacyclopentadiene; Furan ; Furan (phase II))
110-01-0 (tetrahydrothiophene; tetrahydro-thiophene; thiolane; thiacyclopentane; Thiolan; Tetrahydrothiophen; Tetramethylensulfid; Thiophene, tetrahydro-)
110019-96-0 (Copper compd. with indium and ytterbium (4:1:1); Ytterbium indium copper; Copper indium ytterbium (Cu4InYb))
110-02-1, 8014-23-1 (thiophene; Thiophen; Thiophen)
110-05-4, 62534-71-8 (di-tert-butyl peroxide; 2-tert-Butylperoxy-2-methyl-propane; Peroxide, bis(1,1-dimethylethyl); Di-t-butyl peroxide)
110-06-5 (di-tert-butyl disulfide)
110085-12-6 (1,1,2,2,3,3,4,4,4a,5,5,6,6,7,7,8,8-heptadecafluoro-8a-methoxy-decahydro-naphthalene)
110085-31-9 (Acetamide, 2-chloro-2-nitro-, monoammonium salt)
11012-05-8 (Cassinourine)
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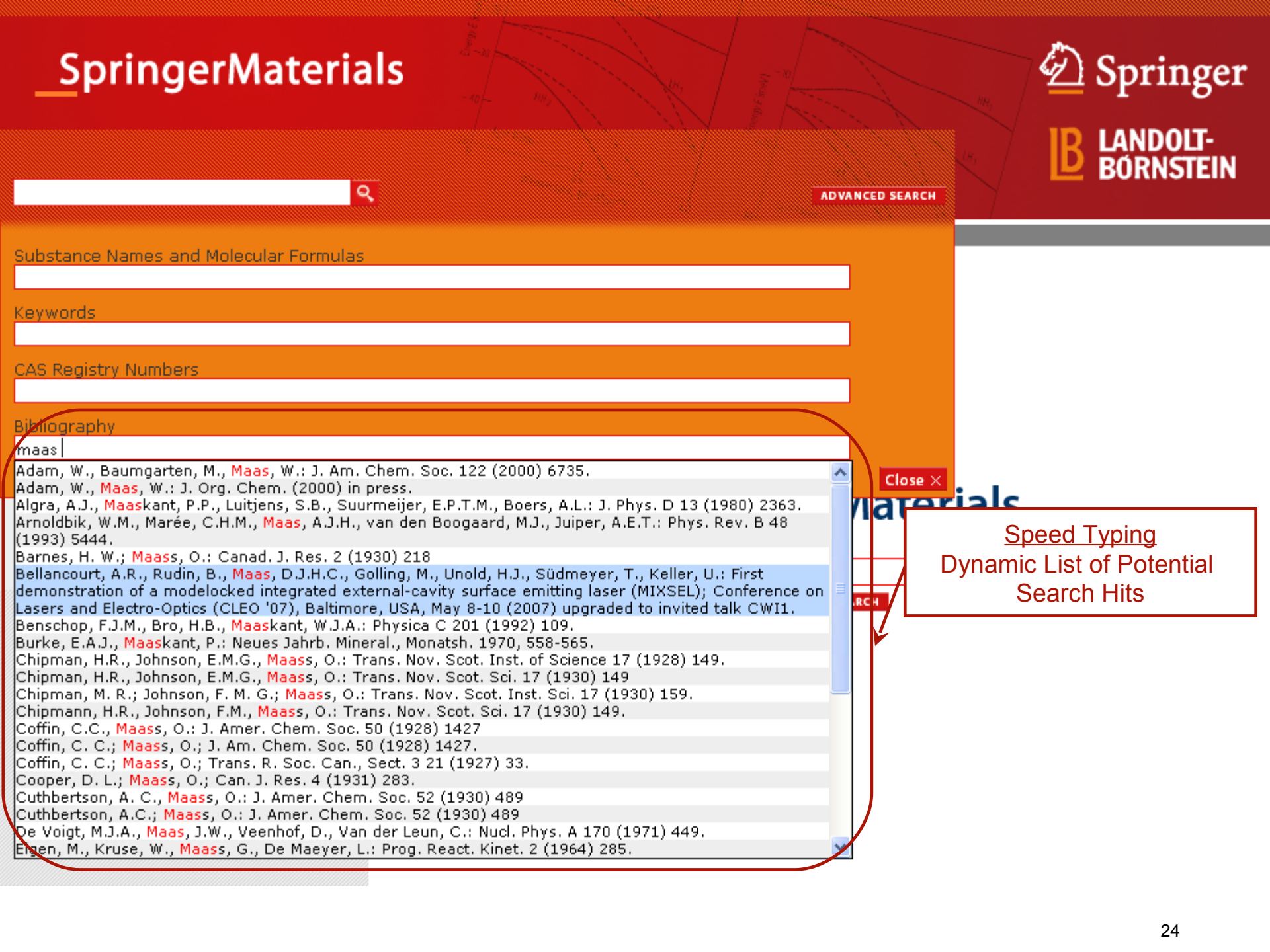
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Eigen, M., Kruse, W., Maass, G., De Maeyer, L.: Prog. React. Kinet. 2 (1964) 285.
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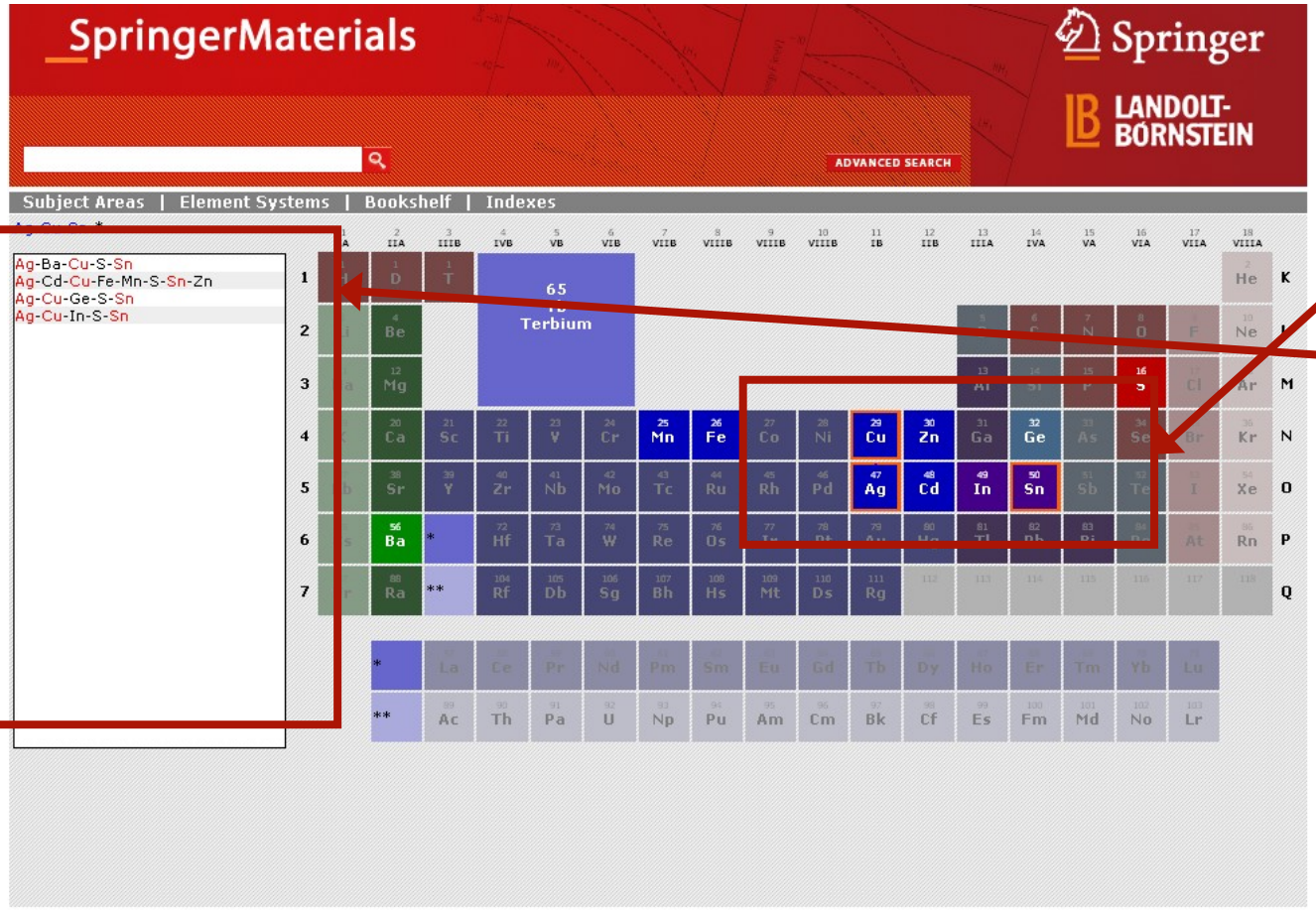


1. Selects components by clicking on elements in periodic table
2. Available content shown

Aircraft engineer needs new alloy for construction of stronger winglets: e.g., Sn-Cu-Ag

Springer Materials
Typical Usage Situation

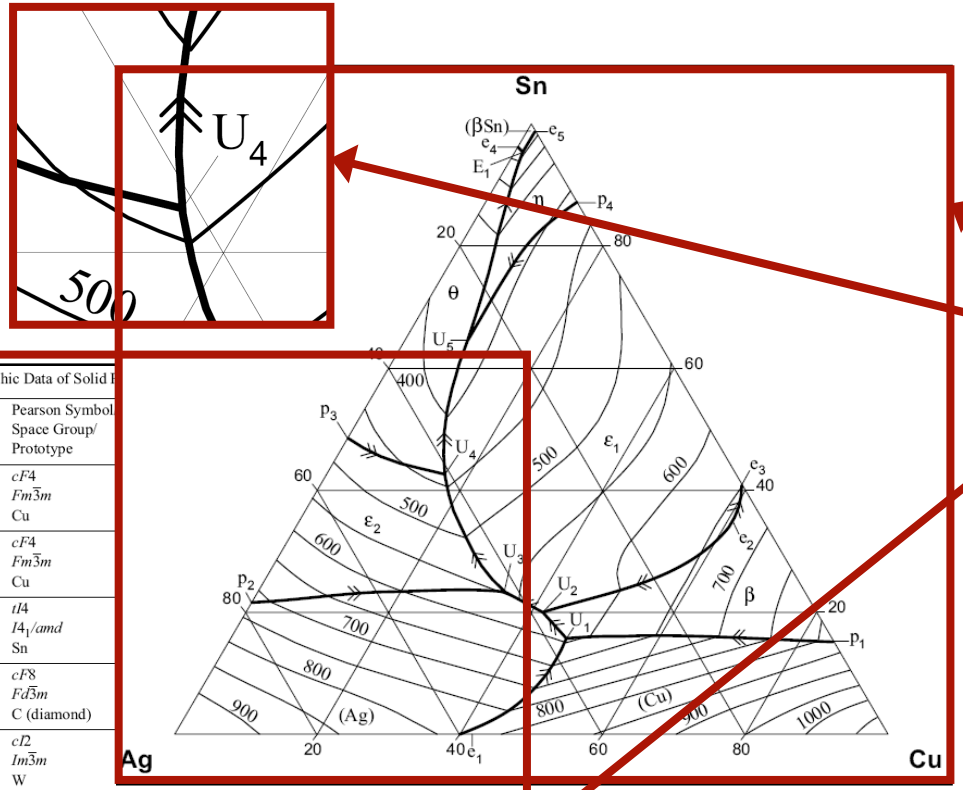


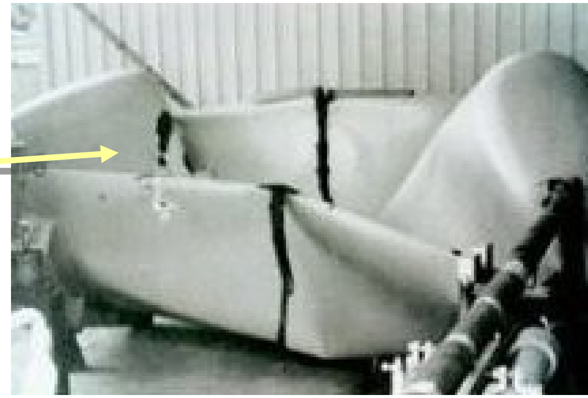
Table 1: Crystallographic Data of Solid P

Phase/ Temperature Range [°C]	Pearson Symbol/ Space Group/ Prototype		
(Ag) < 961.93	*cF*4 *Fm*$\bar{3}$*m* Cu		
(Cu) < 1084.62	*cF*4 *Fm*$\bar{3}$*m* Cu		
(βSn) 231.9681 - 13	*tI*4 $I4_1/amd$ Sn		
(αSn) < 13	*cF*8 *Fd*$\bar{3}$*m* C (diamond)		
β, $Cu_{13}Sn_3$ 796 - 586	*cI*2 *Im*$\bar{3}$*m* W		
β′ 775 - 574	*cP*2 *Pm*$\bar{3}$*m* CsCl		13.7 - 22.8 at.% Sn [2004Liu]
γ, Cu_4Sn 722 - 515	*cF*16 *Fm*$\bar{3}$*m* BiF_3	*a* = 606.05	710°C, 16.6 at.% Sn [Mas2] 13.7 - 27.5 at.% Sn [2004Liu]
δ, $Cu_{41}Sn_{11}$ 569 - 350	*cF*416 *F*$\bar{4}$3*m* $Cu_{41}Sn_{11}$	*a* = 1798	20.5 at.% Sn [Mas2]

Landolt-Börnstein

1. Opens phase diagram
2. Selects desired material from diagram
3. Collects desired materials properties

Chemical reactor burst due to high vapor pressure



Springer Materials
Typical Usage Situation

1. Read fundamentals
2. Select desired vapor pressure from table

Ref. p. 12] 1 Introduction 7

1.3.2 Empirical Vapor Pressure Equations

During the past century many empirical mathematical functions have been used to relate vapor pressure to temperature; most are modifications of Eq. (1.7). These functions have several parameters that are characteristic of the compound. Curve fits off experimental data, usually by minimizing the sum of the squares of the deviations between the calculated and observed pressures or temperatures (least squares criterion), provide these parameters. The first and most widely used of these equations is the Antoine equation [1888-ant, 46-tho]. The original form is,

$$\log P = A - B\,(C + T)^{-1} \qquad (1.8)$$

Sometimes the natural logarithm is used instead of the base-10 logarithm or Celsius temperature is used instead of Kelvin. When C = 0 (for T in kelvins) Eq. (1.8) is identical to Eq. (1.7). The *Thermodynamics Research Center Thermodynamic Tables - Hydrocarbons* [xx-trchc] *and Nonhydrocarbons* [xx-trcnh] - use an extended version of the Antoine equation:

$$\log P = A - B\,(C + T)^{-1} + 0.43429\chi^{n} + E\chi^{8} + F\chi^{12} \qquad (1.9)$$

where n, E, and F are additional adjustable parameters. T_c is the critical temperature, T_0 the lower boundary temperature and $\chi = (T - T_0)/T_c$

Examples of functions obtained by adding terms to Eq. (1.7) are the polynomial in temperature used in the *International Critical Tables* [26-ano],

$$\ln P = A + BT^{-1} + CT + DT^{2}, \qquad (1.10)$$

the Chebyshev polynomial [70-ambcou]

$$T \ln P = a_0/2 + \sum_{s=1}^{l} a_s E_s(\chi) \qquad (1.11)$$

$$\chi = [2T - (T_{max} - T_{min})] / (T_{max} - T_{min}) \qquad (1.12)$$

in which $E_s(\chi)$ is a Chebyshev polynomial in χ of degree s (the advantage of this is that the E_s functions are orthogonal), the Kirchoff-Rankine equation [48-tho],

$$\ln P = A + BT^{-1} + C \ln T, \qquad (1.13)$$

(same form as Eq. (1.6)); the Planck-Riedel equation [48-plarie]

$$\ln P = A + BT^{-1} + C \ln T + DP^{6}, \qquad (1.14)$$

and the Frost-Kalkwarf equation [53-frokal]

$$\ln P = A + BT^{-1} + C \ln T + DPT^{-2} \qquad (1.15)$$

Another popular type of function is the Cox equation [36-cox]:

$$\ln (PP_0^{-1}) = A\,(1 - T_0/T) \qquad (1.16)$$

where A is a function of temperature often taken to be

$$\ln A = a + bT + cT^{2} \qquad (1.17)$$

Wagner and others [73-wag, 73-wag-1, 77-wag, and 86-amb-1] have proposed a series of related equations. The simplest is

$$\ln (PP_c^{-1}) = (A\tau + B\tau^{1.5} + C\tau^{3} + D\tau^{6}) / T_r \qquad (1.18)$$

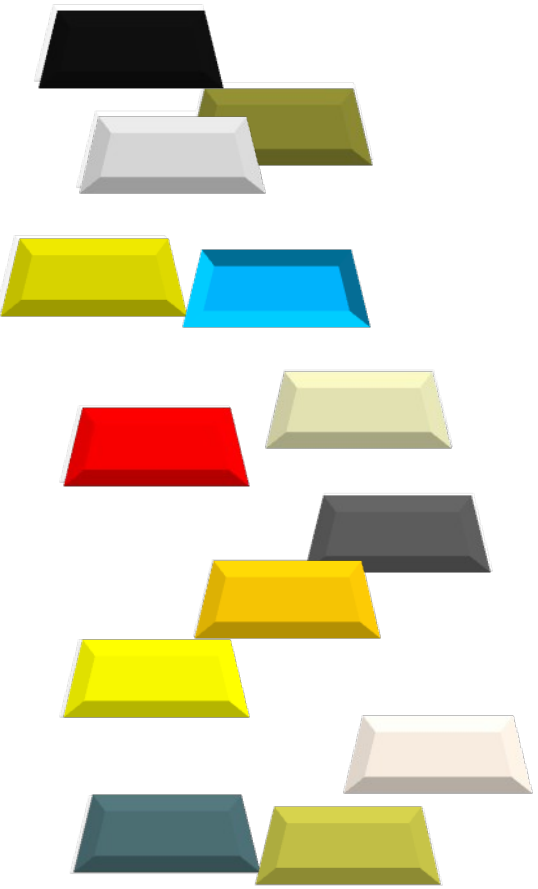
where $\tau = 1 - T/T_c$, P_c is the critical pressure and T_c is the critical temperature. One of the variations [76-wagewe] is:

$$\ln (PP_c^{-1}) = (A\tau + B\tau^{1.5} + C\tau^{3} + D\tau^{6} + E\tau^{9}) / T_r \qquad (1.19)$$

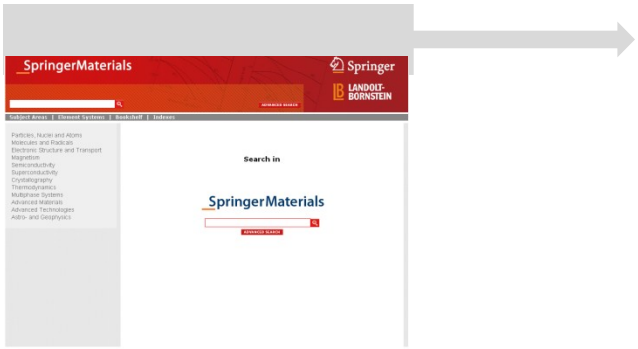
40 2.2 Hydrocarbons, C_8 to C_9 [Ref. p. 261

Phase	Antoine constants A, (n)	B [K], (E)	C [K], (F)	T-range [K]	Range [K], Rating	T_b[K]/P_b[kPa]	Ref. Note
387	C_8H_{18}		Octane				111-65-9
l-g	6.56398	1606.62	–42.89	217/294	216.4/294 B	398.83/101.325	90-trchc
l-g	6.05075	1356.36	–63.515	298/423	294/407 A		90-trchc
l-g	6.05075	1356.36	–63.515	423/568	407/568.4 B		90-trchc
	(2.86414)	(949.2)	(–73246)				
388	C_8H_{18}		2,2,3,3-Tetramethylbutane				594-82-1
cr-g	6.91839	1632.6	–46.09	252/372	242/374 B	379.44/101.325	90-trchc
l-g	5.9042	1270.1	–53.65	372/406	374/416 B		90-trchc
389	C_8H_{18}		2,2,3-Trimethylpentane				564-02-3
l-g	5.94826	1293.94	–54.795	284/408	270/400 A	382.99/101.325	90-trchc
l-g	5.94826	1293.94	–54.795	408/563	400/563.5 B		90-trchc
	(2.45345)	(162.4)	(–5383)				
390	C_8H_{18}		2,2,4-Trimethylpentane				540-84-1
l-g	6.35751	1447.78	–36.53	190/272	180/272 B	372.39/101.325	90-trchc
l-g	5.93646	1257.85	–52.383	272/398	272/400 A		90-trchc
l-g	5.93646	1257.85	–52.383	398/553	400/543.9 B		90-trchc
	(2.13261)	(134.5)	(12998)				
391	C_8H_{18}		2,3,3-Trimethylpentane				560-21-4
l-g	5.96421	1325.81	–52.989	287/408	277/402 A	387.92/101.325	90-trchc
l-g	5.96421	1325.81	–52.989	408/573	402/573.5 B		90-trchc
	(2.3793)	(76.3)	(1851)				
392	C_8H_{18}		2,3,4-Trimethylpentane				565-75-3
l-g	6.35762	1507.04	–38.35	216/298	205/298 B	386.62/101.325	90-trchc
l-g	5.977	1314.31	–55.669	298/408	298/400 A		90-trchc
l-g	5.977	1314.31	–55.669	408/566	400/566.4 B		90-trchc
	(2.39574)	(169.4)	(–4867)				
393	C_9H_8		Indene, (1H-indene)				95-13-6
l-g	6.34410	1749.215	–52.375	297/457	290/460 B	455.57/101.325	42-bur 61-stumco
394	C_9H_{10}		Indan				496-11-7
l-g	6.11230	1577.321	–66.828	375/465	370/470 A	450.92/101.325	81-hossco-1 78-osbsco
395	C_9H_{10}		Isopropylbenzene				98-83-9
l-g	7.13460	2234.172	–2.336	295/438	290/440 C	437.34/101.325	49-dremar, 83-mutmun, 47-stu
396	C_9H_{10}		2-Methylstyrene				611-15-4
l-g	6.27022	1624.066	–62.128	305/385	300/390 B	370.29/10	53-clewis
397	C_9H_{10}		3-Methylstyrene				100-80-1
l-g	6.36538	1682.941	–56.908	314/442	314/330 C, 330/445 B	442.93/101.325	49-buccol 53-clewis

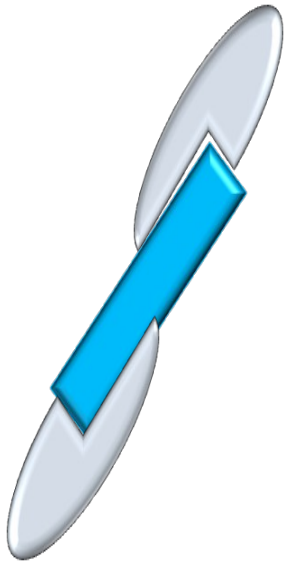
Available
Raw Materials



Use SpringerMaterials
To Select Patent-relevant
Materials With
Desired Properties



Build Patented
Device



Competition

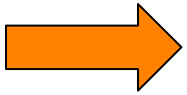
No Competition! Only Other Brands

- **Gmelin Database**

  Inorganic and Organometallic Chemistry; over 2.5 million compounds (coordination compounds, alloys, solid solutions, glasses and ceramics, polymers, minerals) more than 2 million reactions, and 1.1 million citations; journals from 1772

- Beilstein Handbook of Organic Chemistry

  Organic Chemistry information on 9.8 million substances, 10.3 million chemical reactions and 2 million original scientific publications; journals from1771 and patents from 1869-1980



planned Relaunch - new product (Reaxys) comprising Beilstein, Gmelin & other Elsevier databases

- Science of Synthesis

  New edition of Houben-Weyl; systematic and critically evaluated review of Synthetic Methods in Organic and Organometallic Chemistry

- INSPEC

  9.5 bibliographic records from scientific and technical journals and conference proceedings in Physics, Electrical Engineering and Electronics, Computing and Control, and Information Technology; a collection of published material without any critical evaluation; records contain bibliographic information, indexing terms, abstracts, property information, and element terms

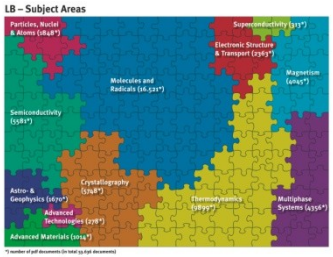
Competition in a Nutshell

No Competition! Only Other Brands

- All very “éminence gris” of prestigious standing … but:
- Either not critically evaluated like INSPEC
- Or covering different subject areas like Science of Synthesis
- Or different focus – even if some overlap: Gmelin, Beilstein, Science of Synthesis are more chemistry oriented, whereas Springer Materials covers the physical side of matter

For a complete picture: Federated search possibility since complemetary brands !

Customers



	Astrophysics and Planetary Institutes	Automobile Companies	Aviation Equipment	Chemical Companies	Climate Research Centers	Computer Science Institutes	Electric and Electronic Devices	Environmental Companies and Institutes	Medical Diagnostics	Consortia	Energy Institutes	Engineering Bureaus	Geological Institutes	Materials Science Companies and Institutes	Medical Research (Development of MRI Tomographs)	Metallurgical Companies and Institutes	Nanotechnology Institutes	Nuclear Research Institutes	National Libraries	NMR Institutes	Observatories	Oil Companies	Photovoltaic Research Centers	Research Institutes (CERN, DESY, ...)	Telecommunication Industry	Universities (MPI, Fraunhofer, ...)	Universities (Physical Sciences, Engineering)
GENERAL						+				+										+						+	+
Particles, Nuclei, Atoms										+										+		+				+	+
Molecules & Radicals										+			+					+	+	+	+					+	+
Thermodynamics						+				+		+	+	+			+		+						+	+	+
Multiphase Systems										+							+		+	+						+	+
Super- & Semiconductivity					+					+	+	+				+	+			+		+			+	+	+
Electronic Transport					+					+		+													+	+	+
Magnetism	+			+	+				+	+		+	+			+	+						+	+		+	+
Crystallography										+		+				+	+		+	+					+	+	+
Advanced Materials & Technologies			+							+				+			+			+						+	+
Astro- & Geophysics	+					+				+		+	+	+		+				+			+	+		+	+

New Business Model

E-only, Access-only database model

- **No ownership – annual subscription – tiered pricing grid**
- **No local hosting**
- **Highly attractive pricing**
- **Print available on request**

- **Target customers**
  - **Up sell to existing customers, mainly large academic and corporate.**
  - **New customers, also mainly large academic and corporate**
- **Pricing**
  - **No subject collections**

    Sales philosophy: Provide access to the entire database, negotiate on price
  - **Different prices per customer segment**

Ownership does not work for SpringerMaterials because…

1. Relationship With Print

   There is no longer a relationship of SpringerMaterials content and a print product. Documents and data are added singly and out of any book context.

2. E-Price vs Print Price

   The price of the eProduct has gone down drastically vs the print series (k€90 to k€30), not up.

3. New Content From Other Databases

   New content will be added from other databases. These data are not print-related and ownership for them cannot be granted.

4. Nature of New Content

   New content is added in such a way that ownership does not make sense for the customer. Owning the single data sheets that are added is useless for the library. It is like owning only those names and phone numbers that are added during a calendar year, but not owning the rest of them.

Take-Away Points

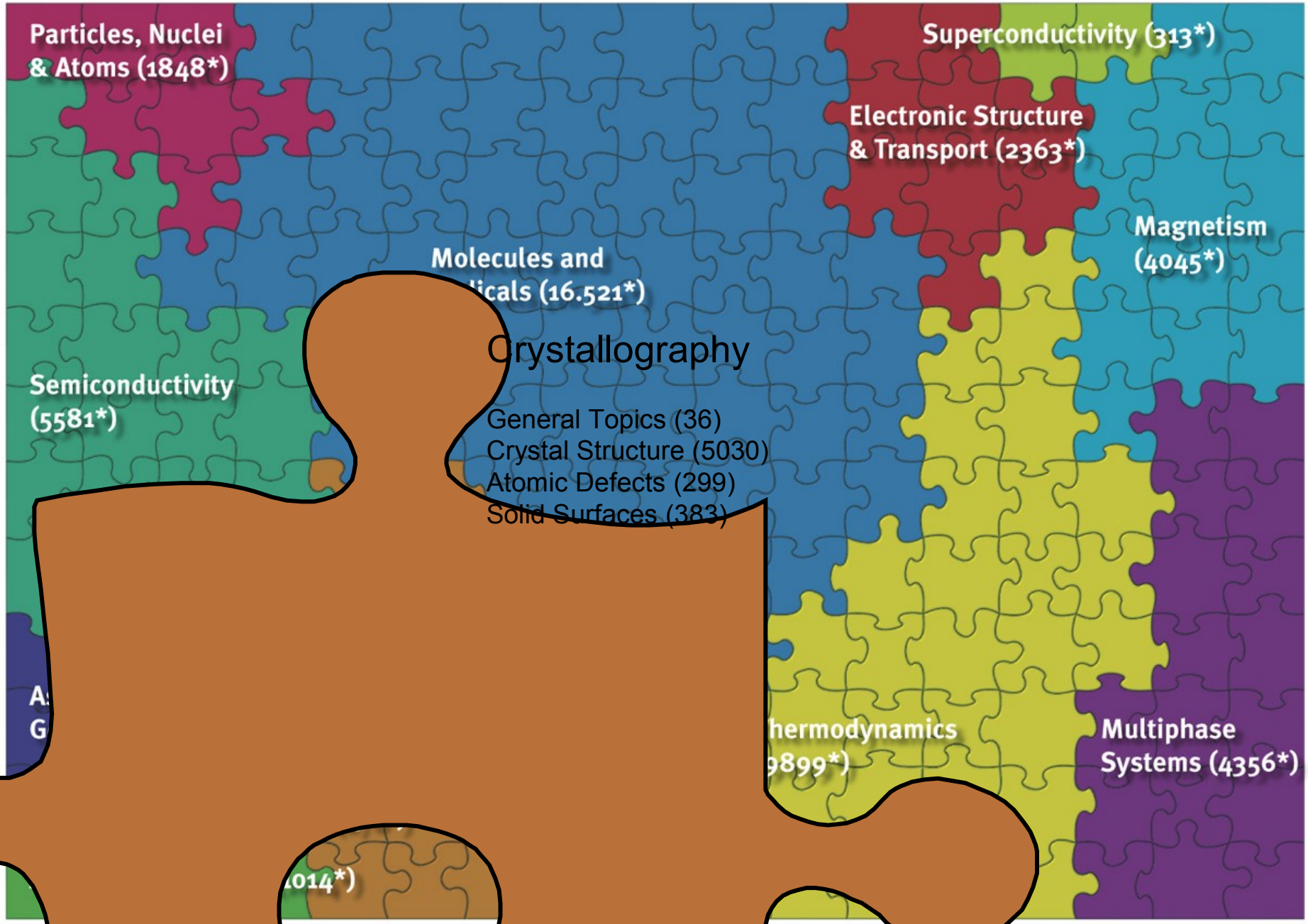
- Springer Materials replaces Landolt-Börnstein (in fall 2009!!!)
- E-only, Access-only database model
- Google-like web platform: powerful, easy-to-use
- It will be the most comprehensive and timely resource of physical data on the market!!
- No competition - only other brands

Stay tuned!

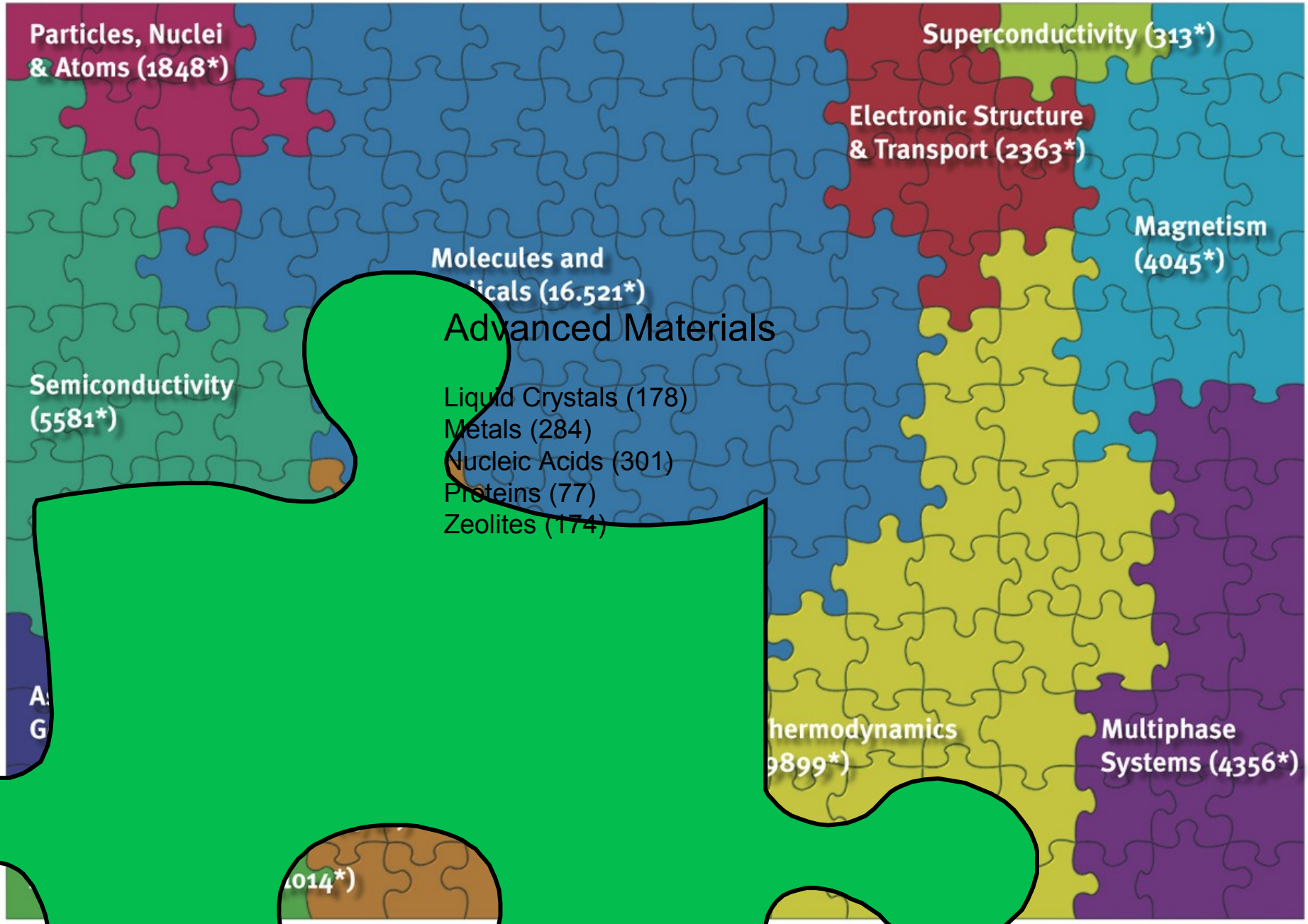
Thank you!!

Back-up Slides

LB – Subject Areas



LB – Subject Areas



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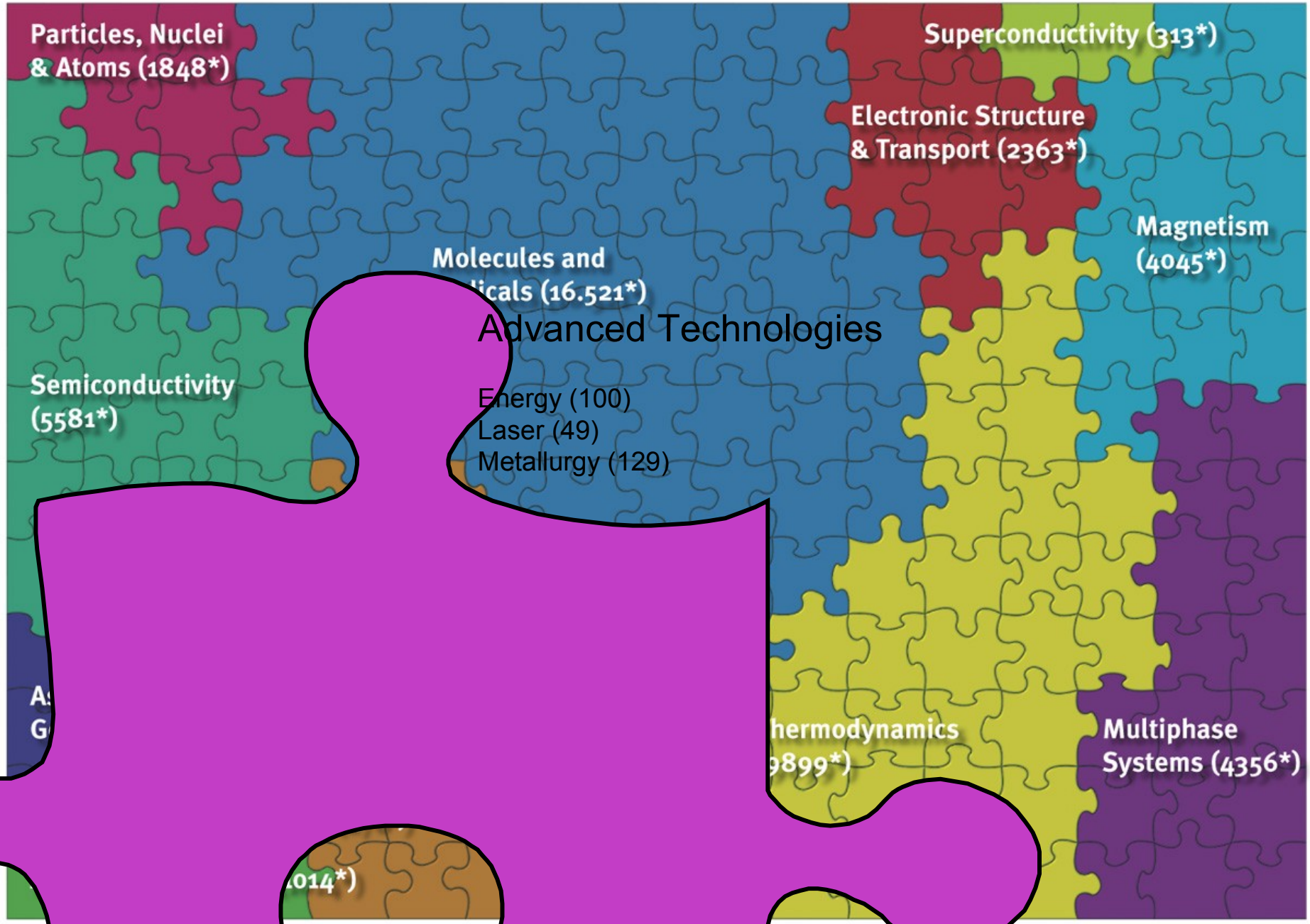

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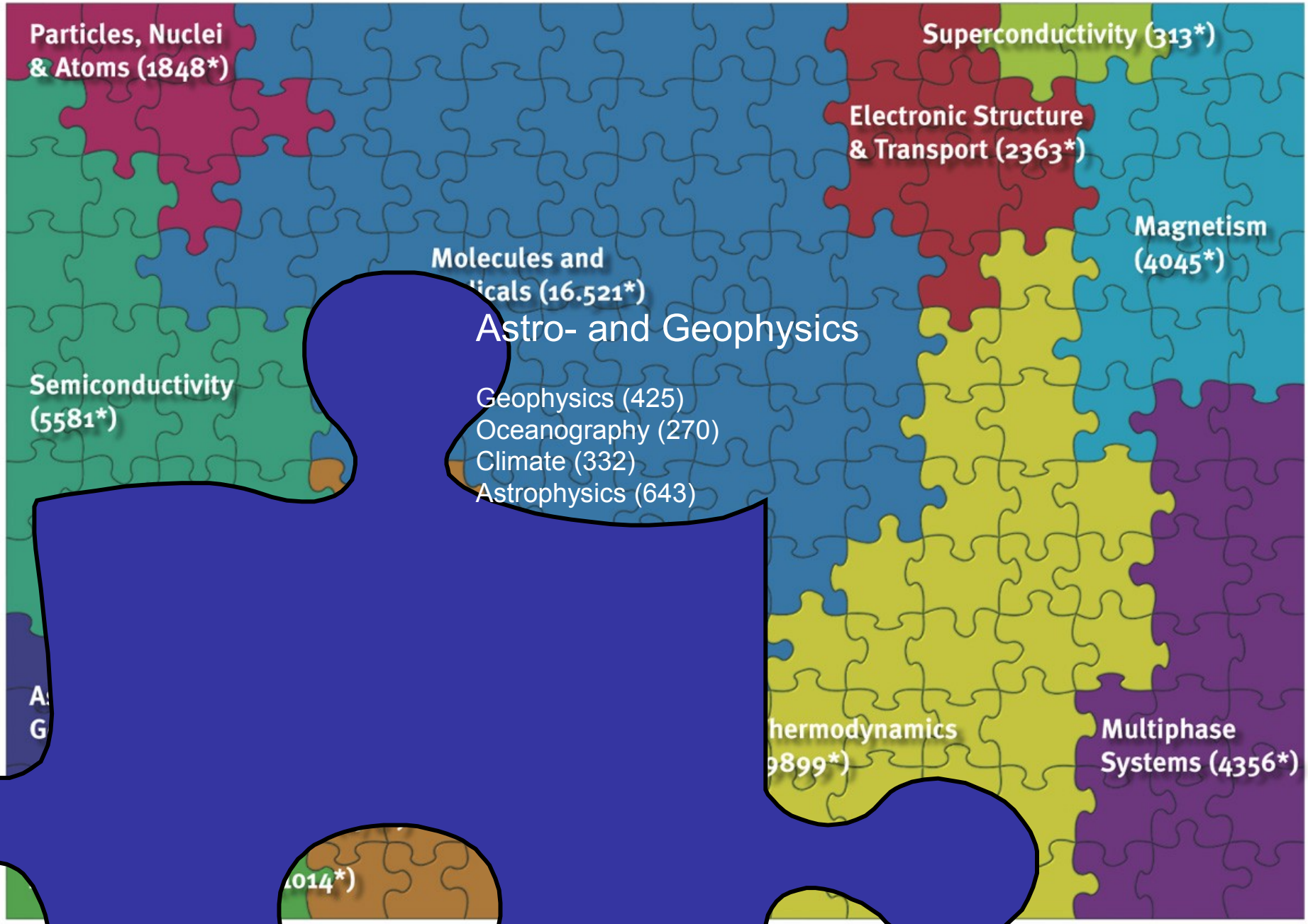

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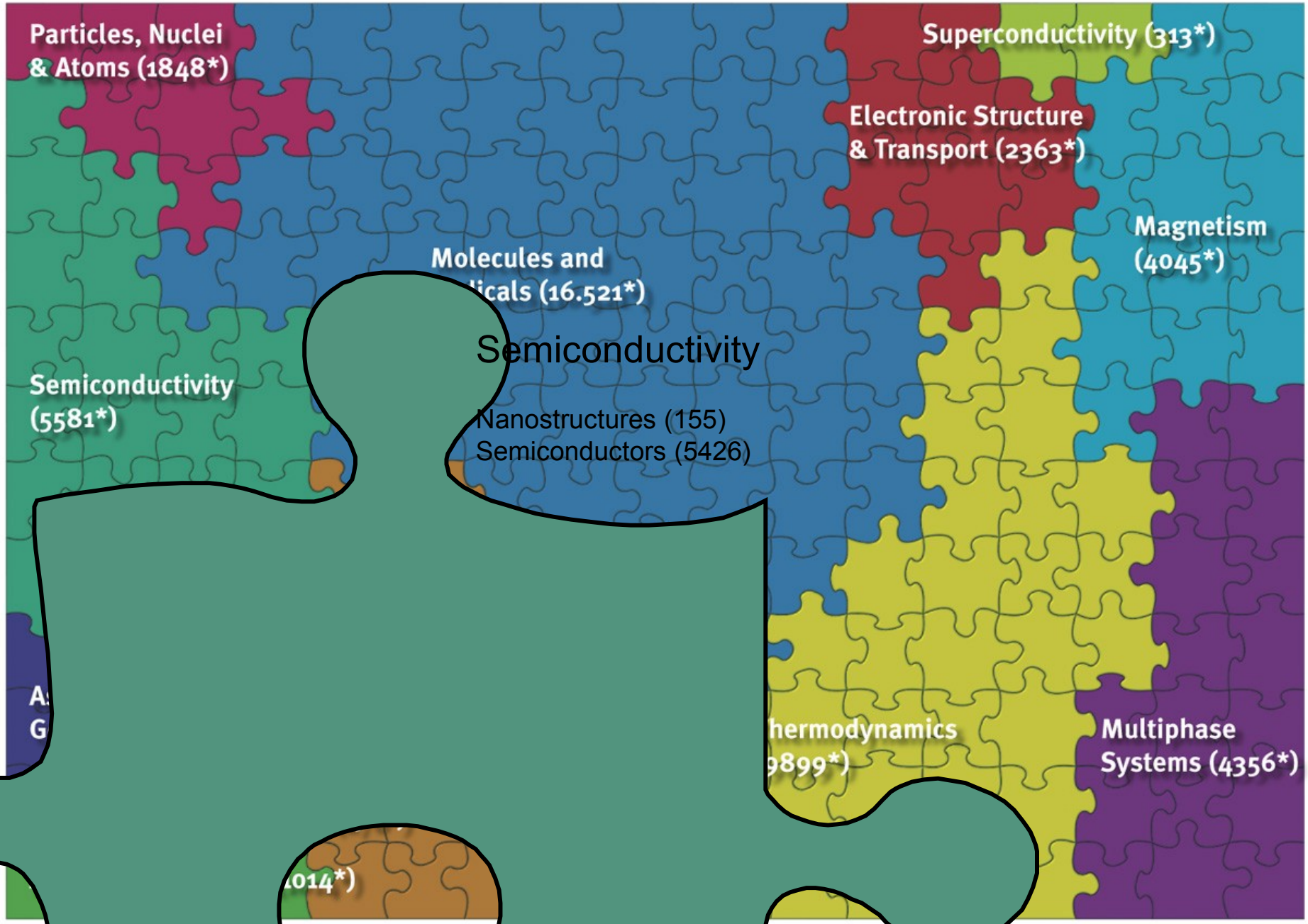

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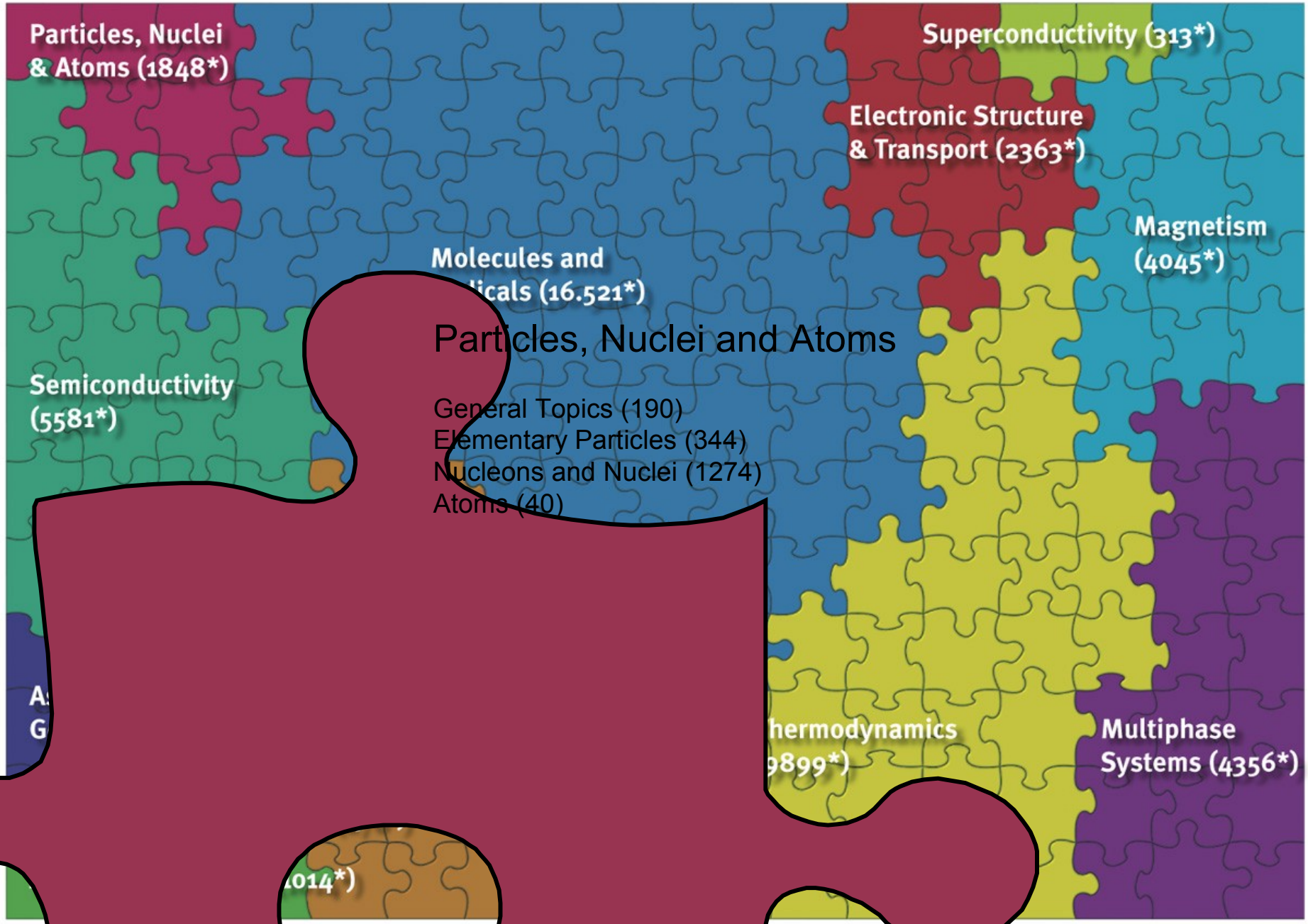

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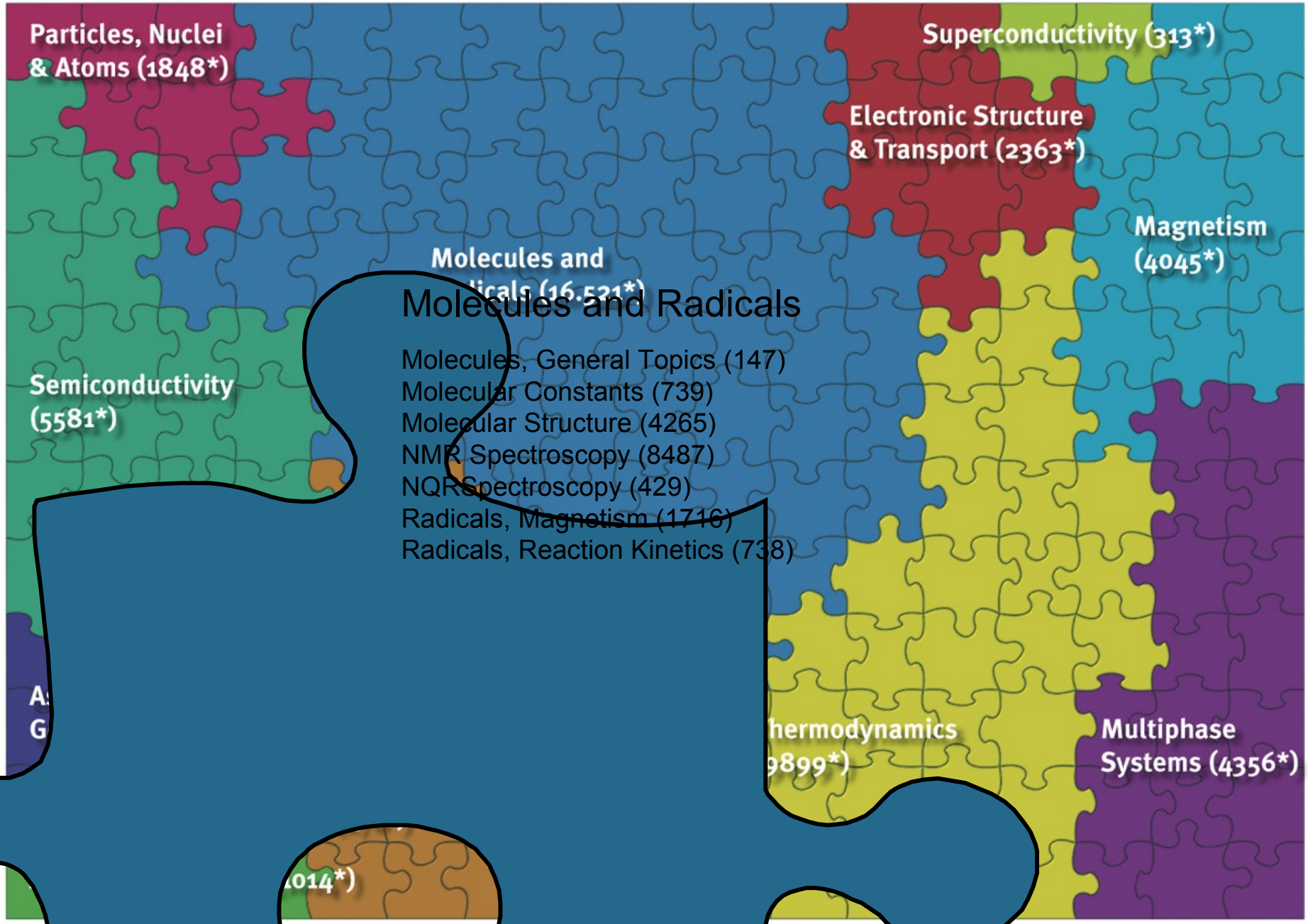

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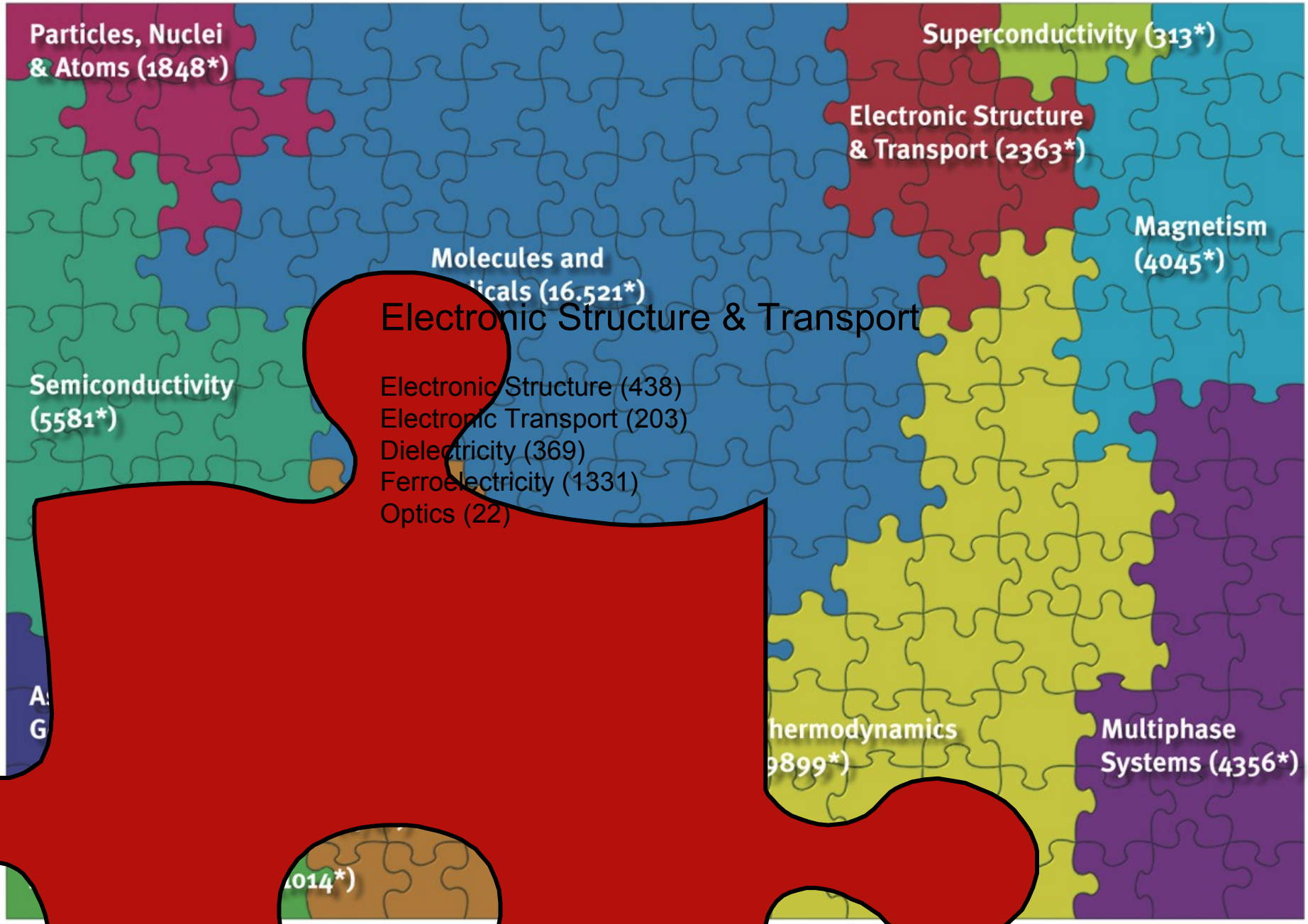

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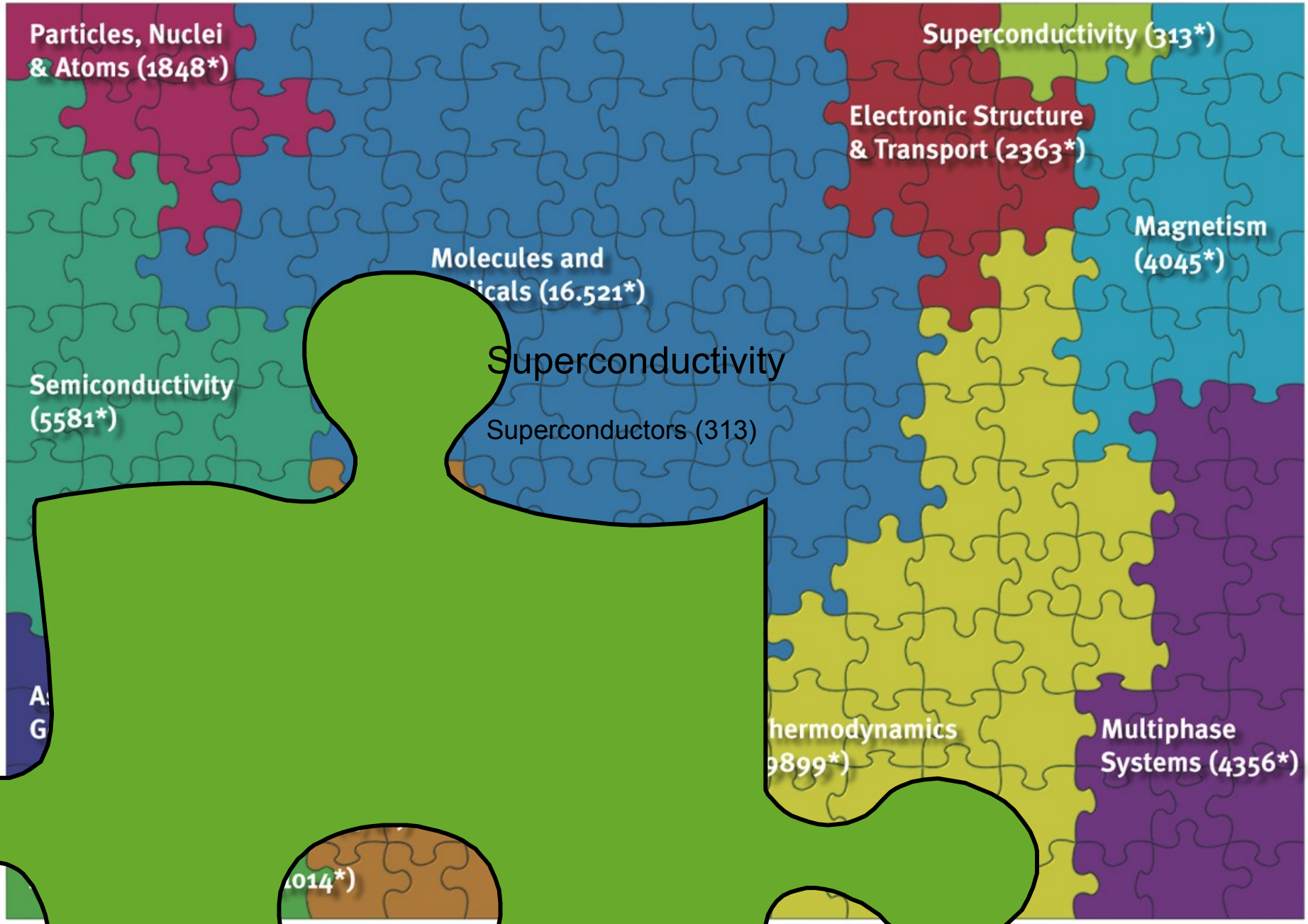

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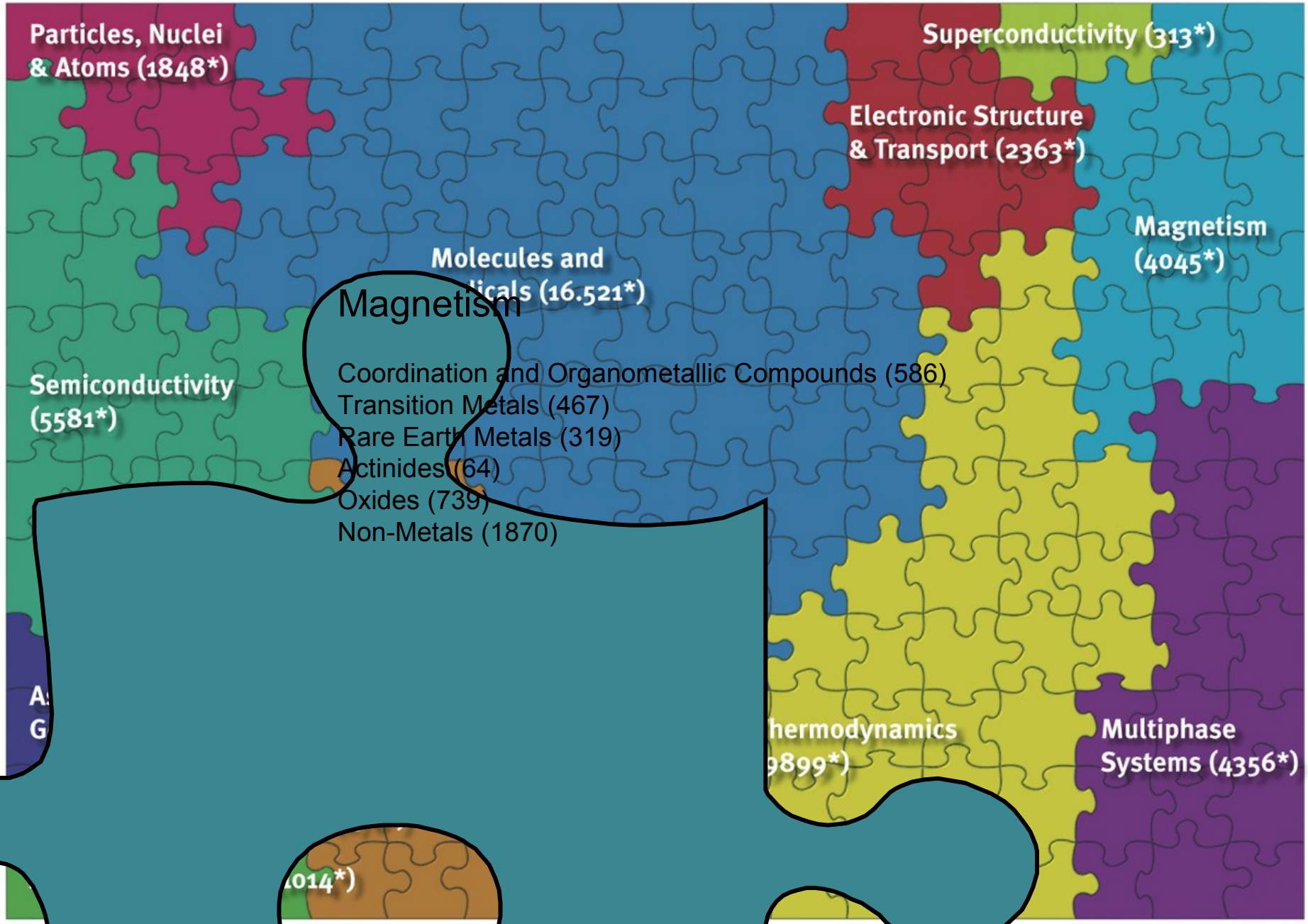

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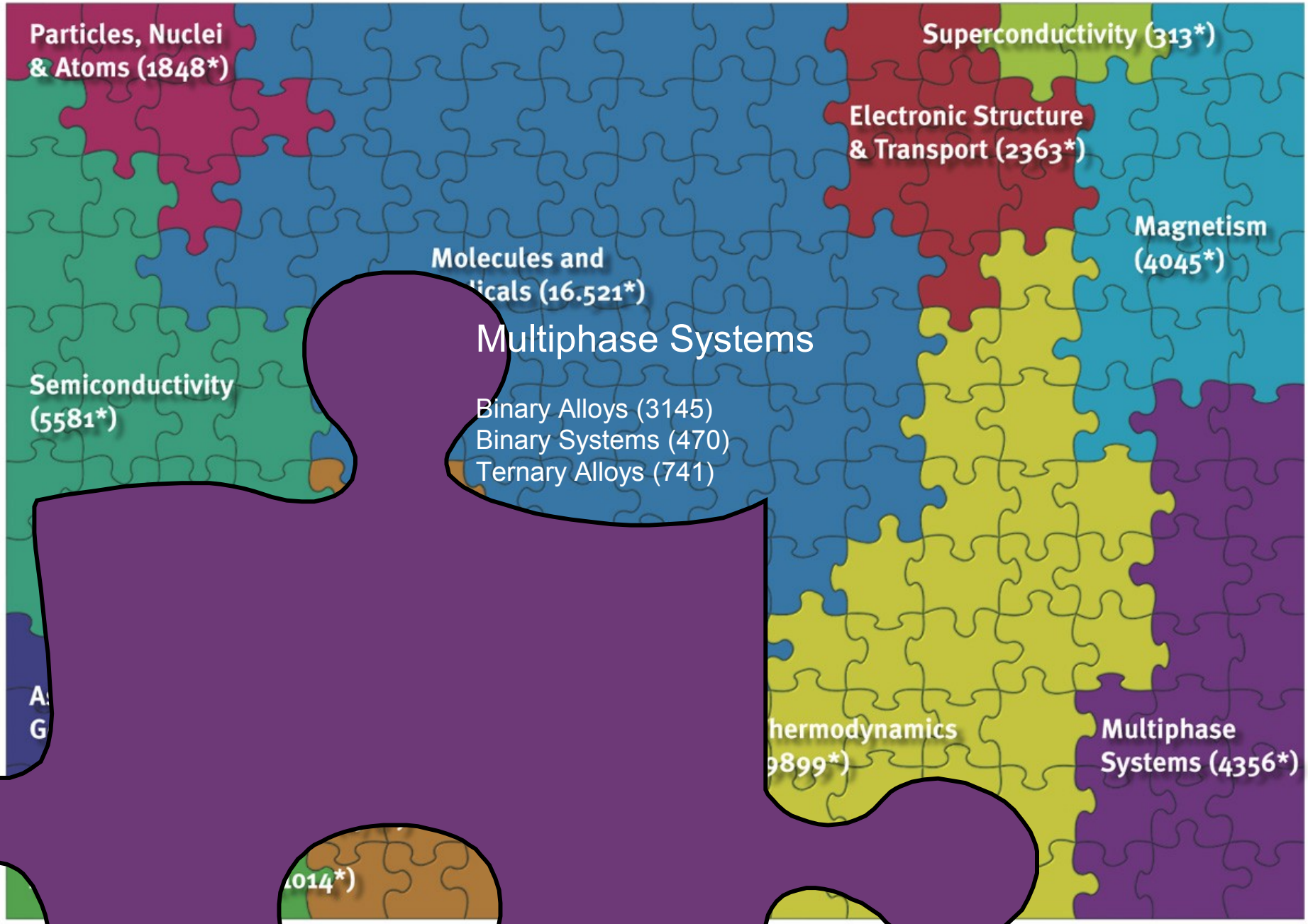

B – Subject Areas