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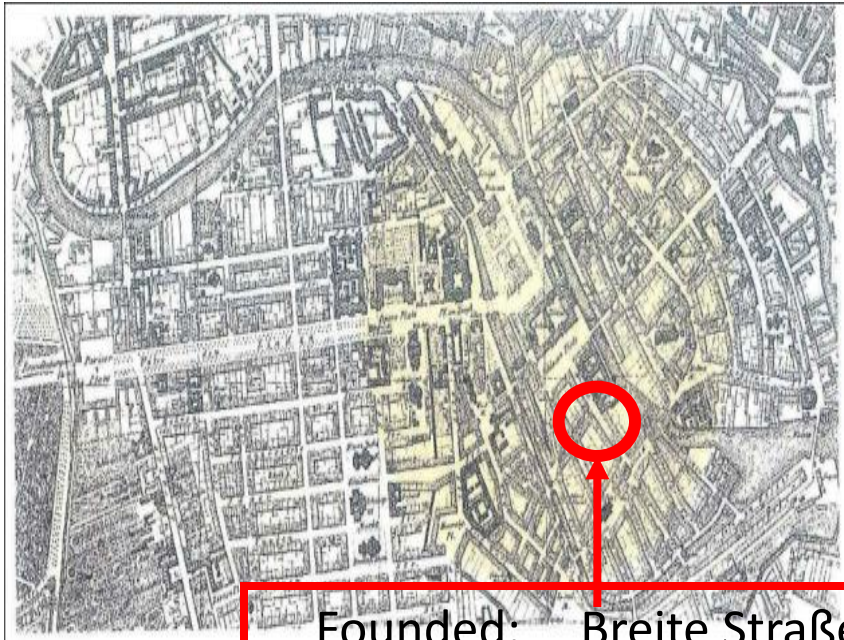
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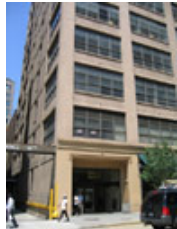
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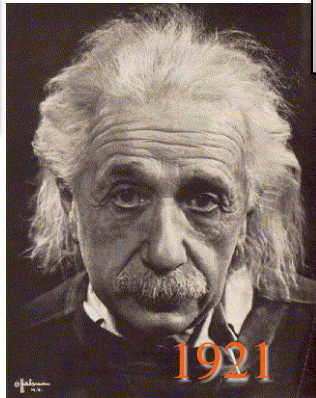
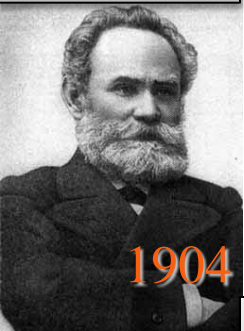
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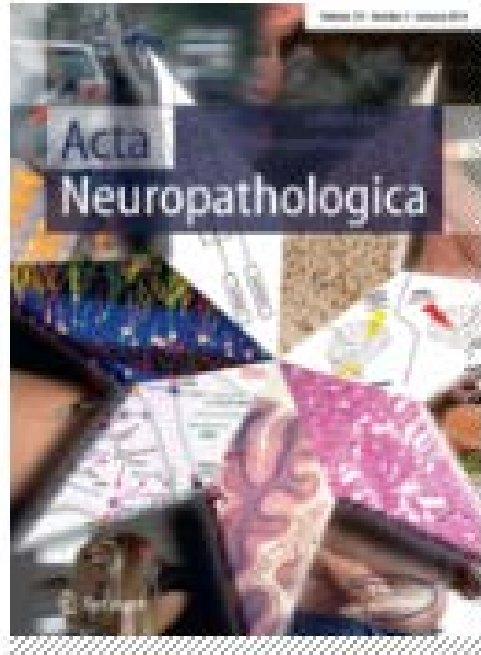
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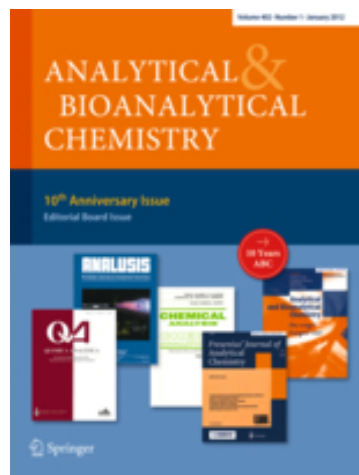


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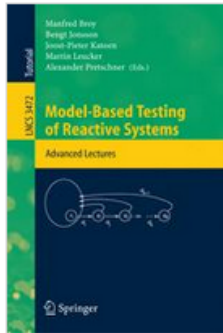

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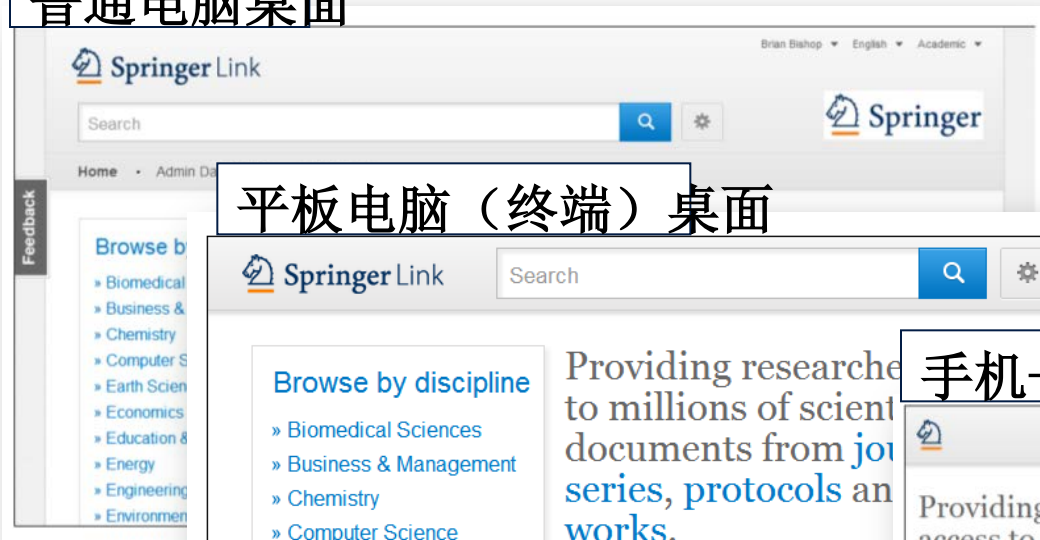
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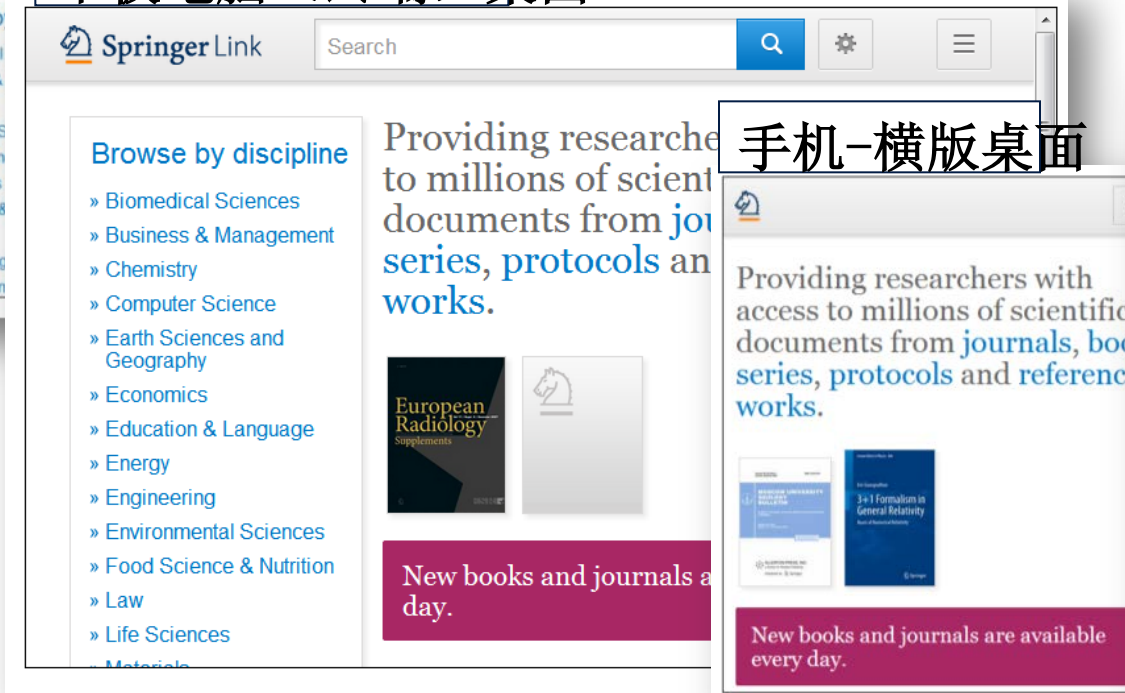
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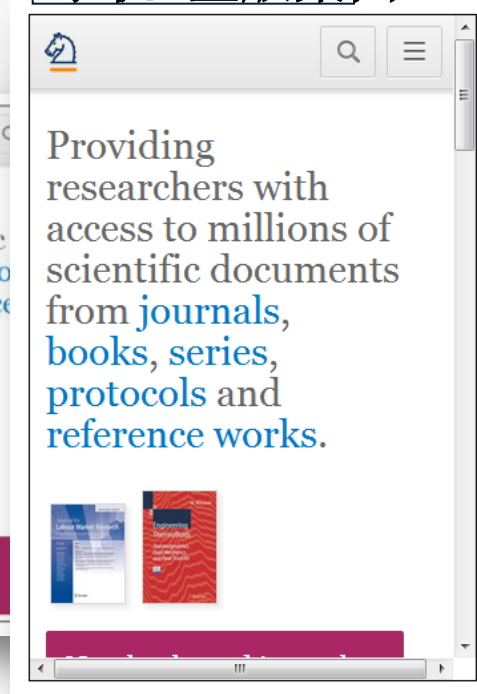
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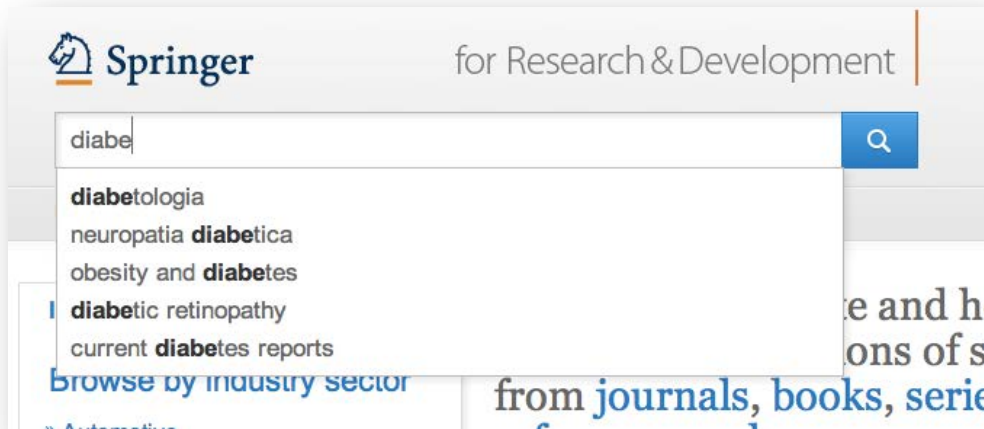
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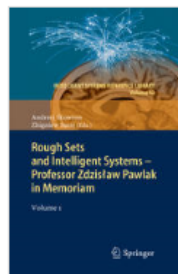


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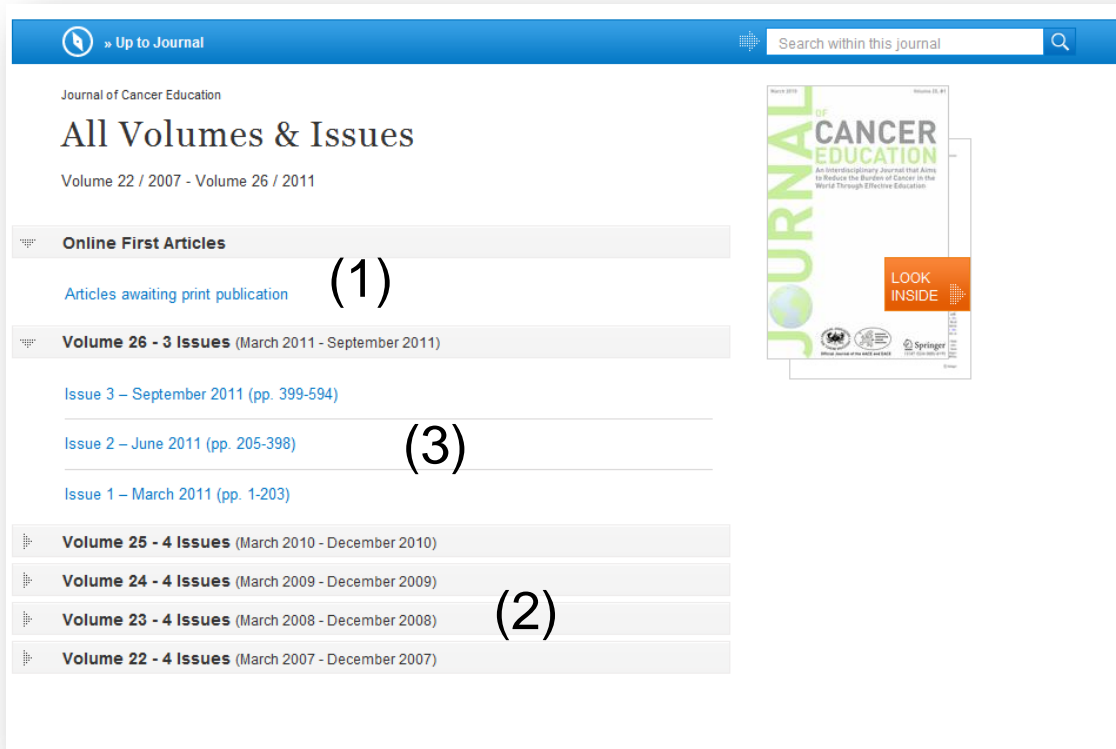
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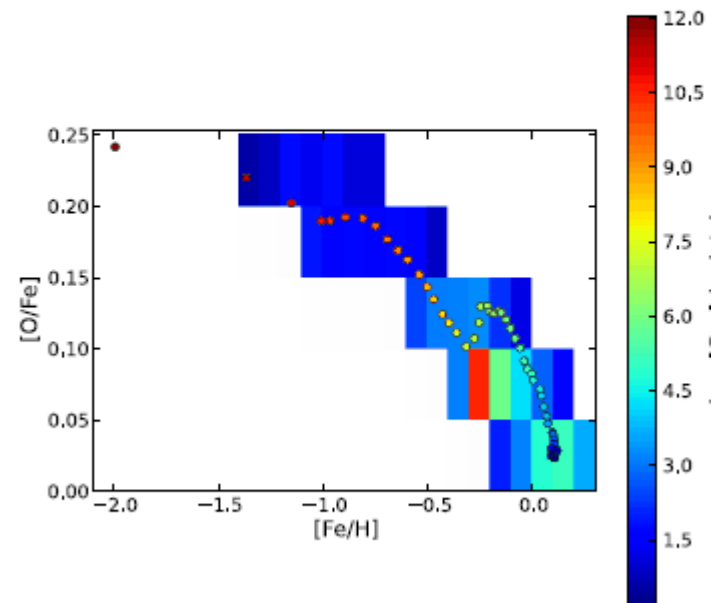
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Way-like galaxy from Stinson et al. (2013), where each par subsets in the simulations, sorted by their age: there is a cl 'young, thin, extended'



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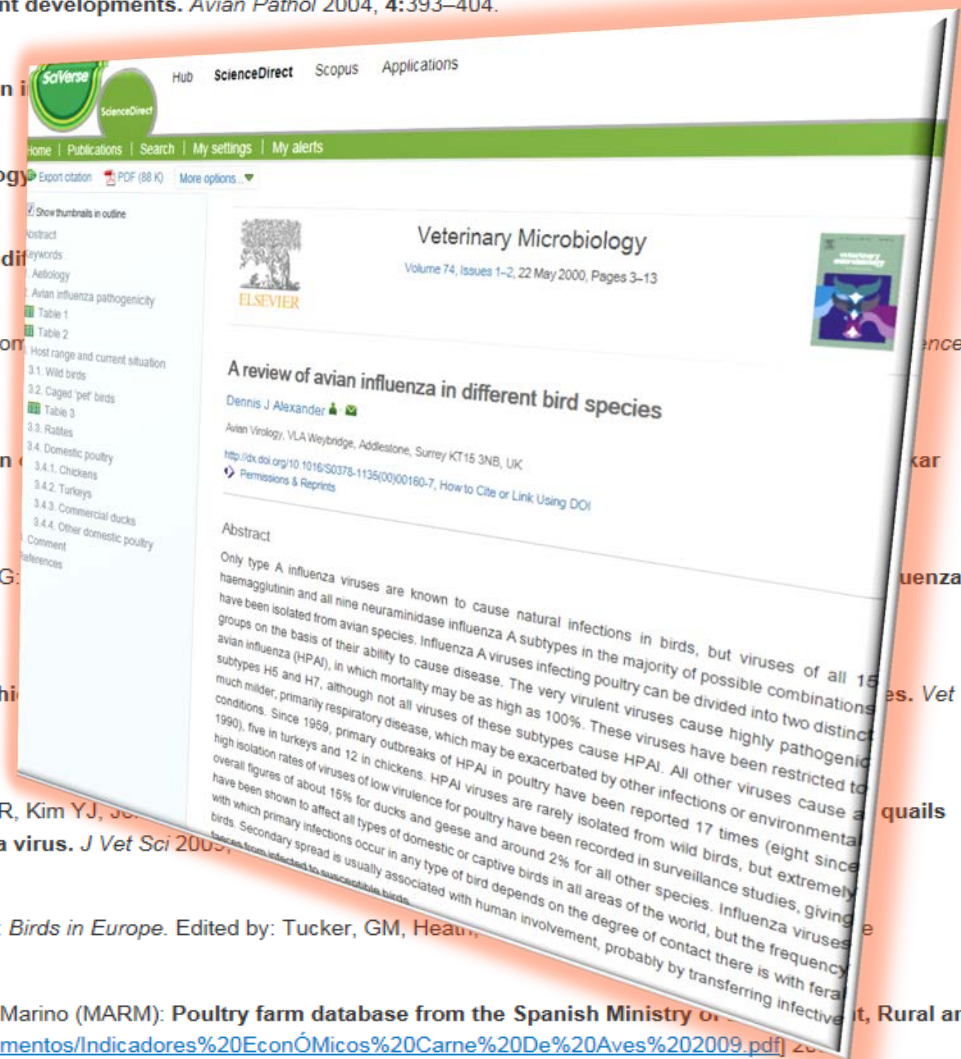
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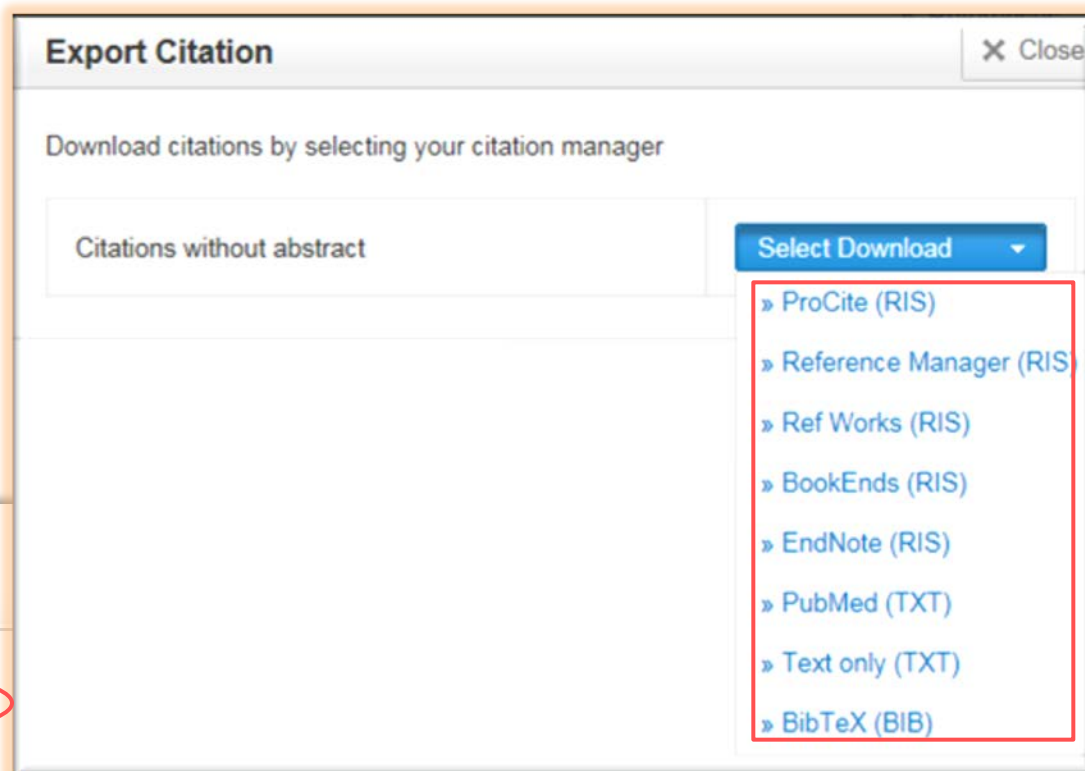
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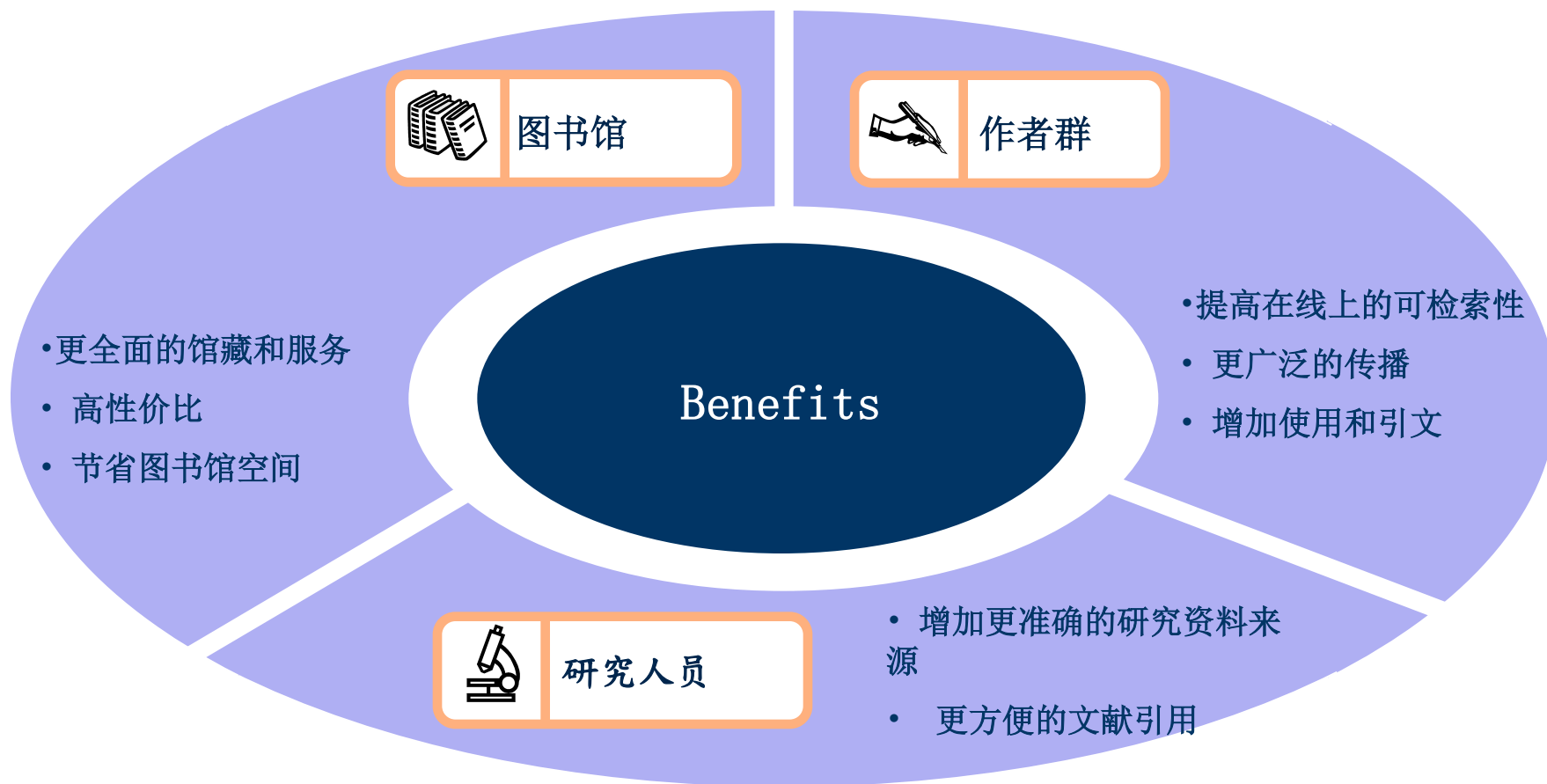
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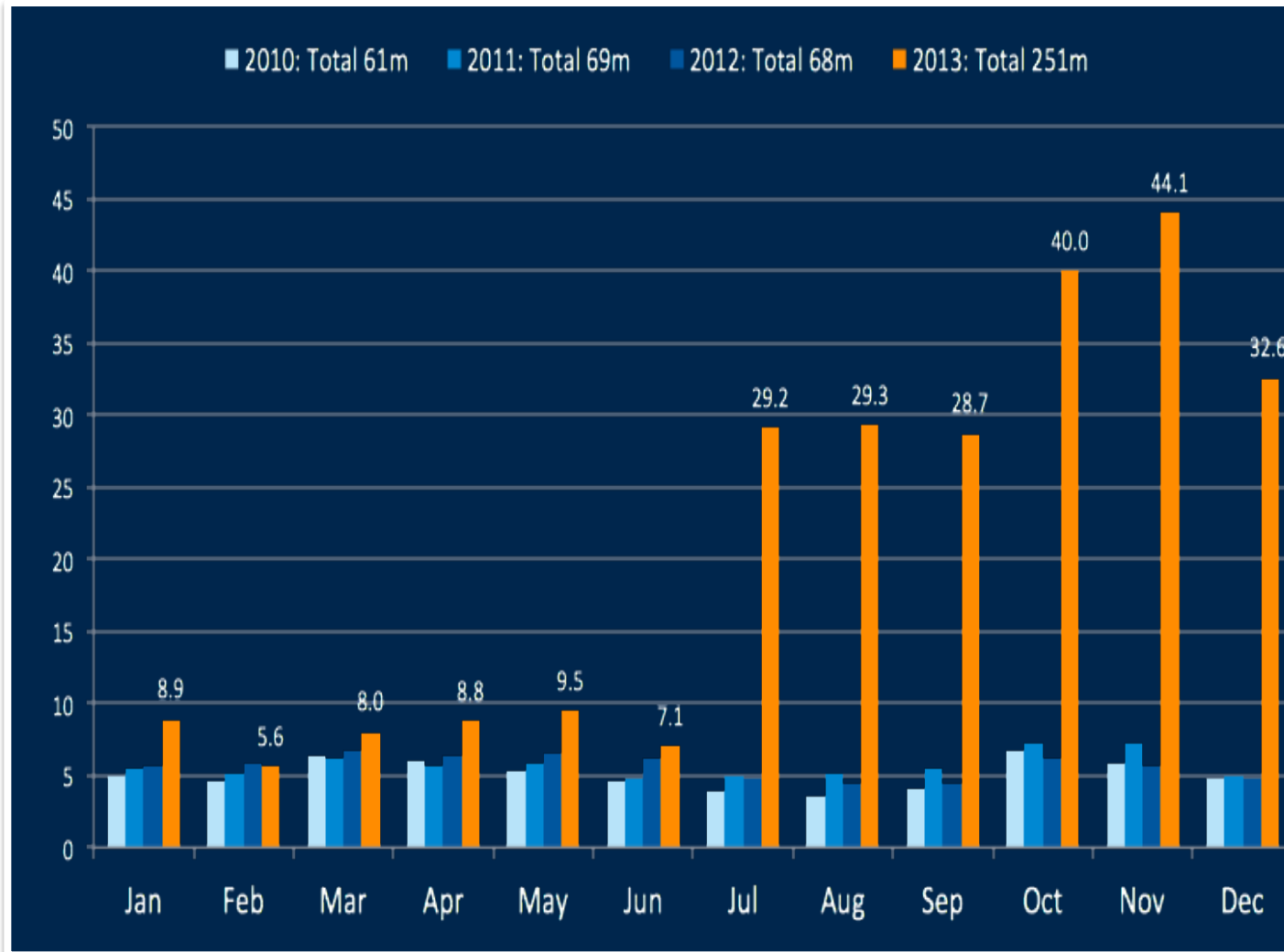
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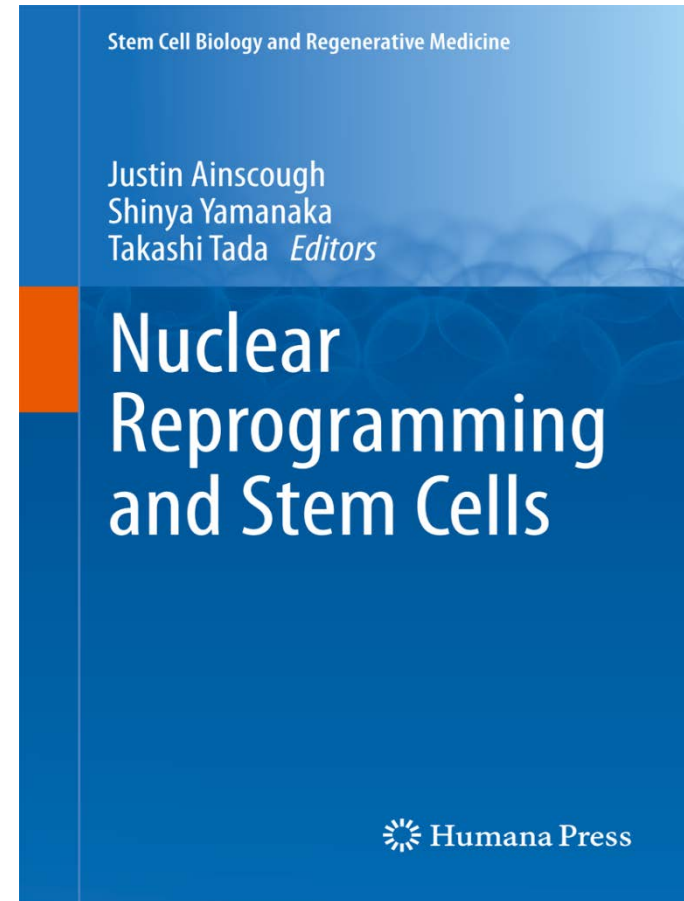
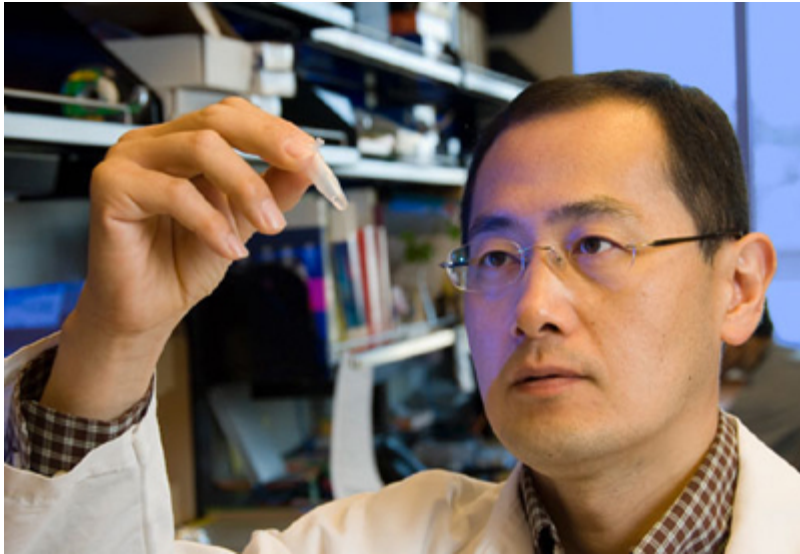
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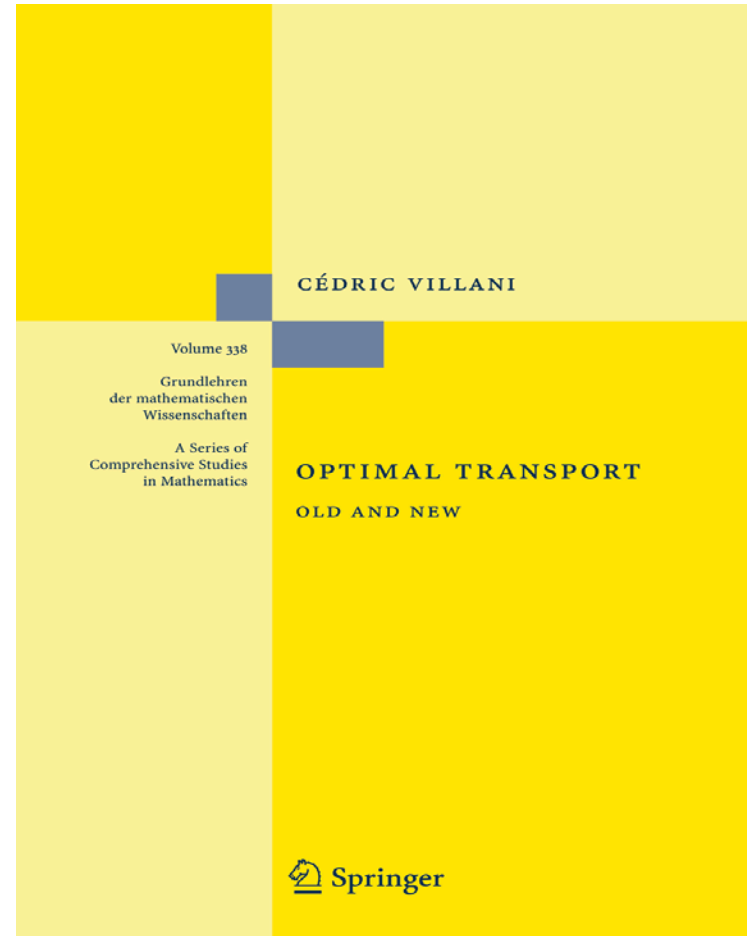
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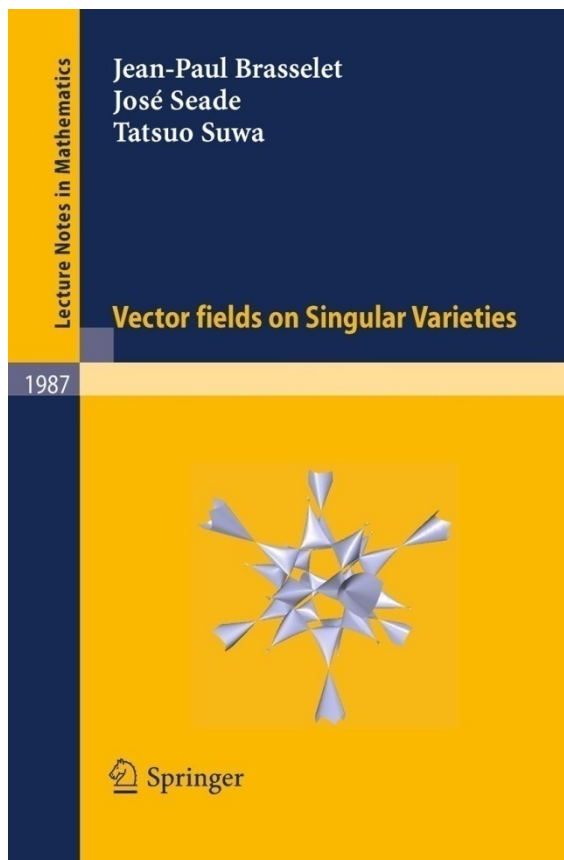


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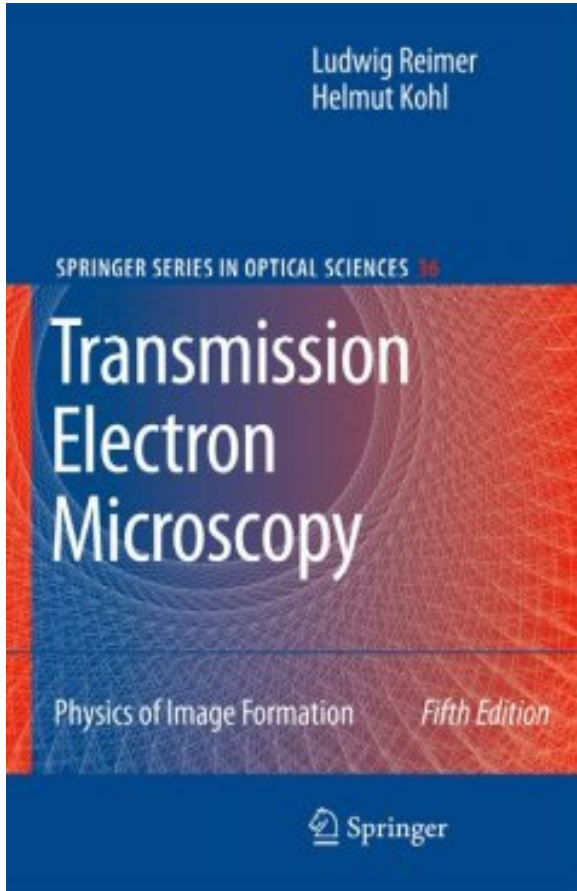


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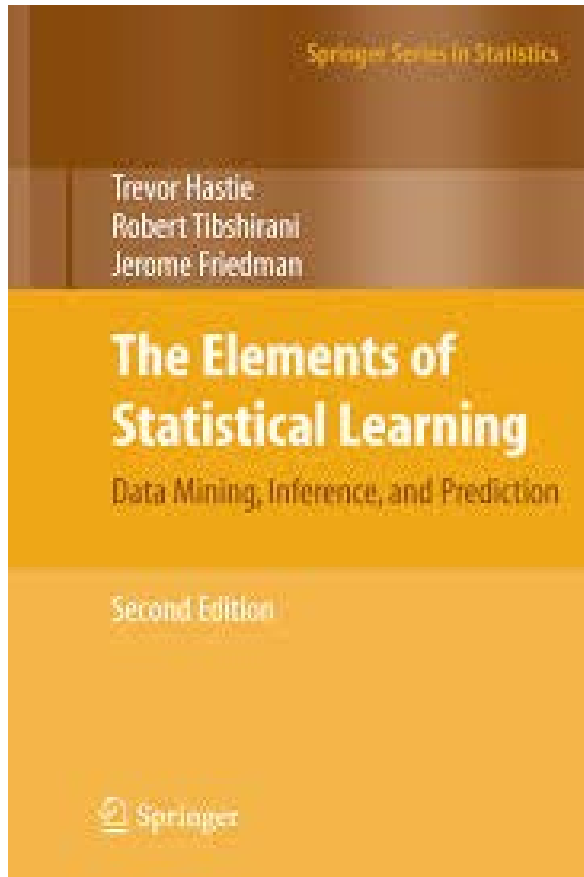
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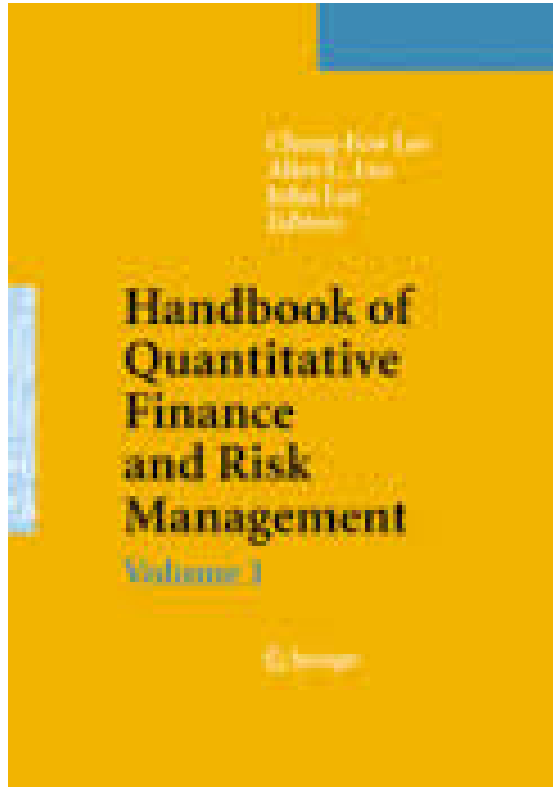
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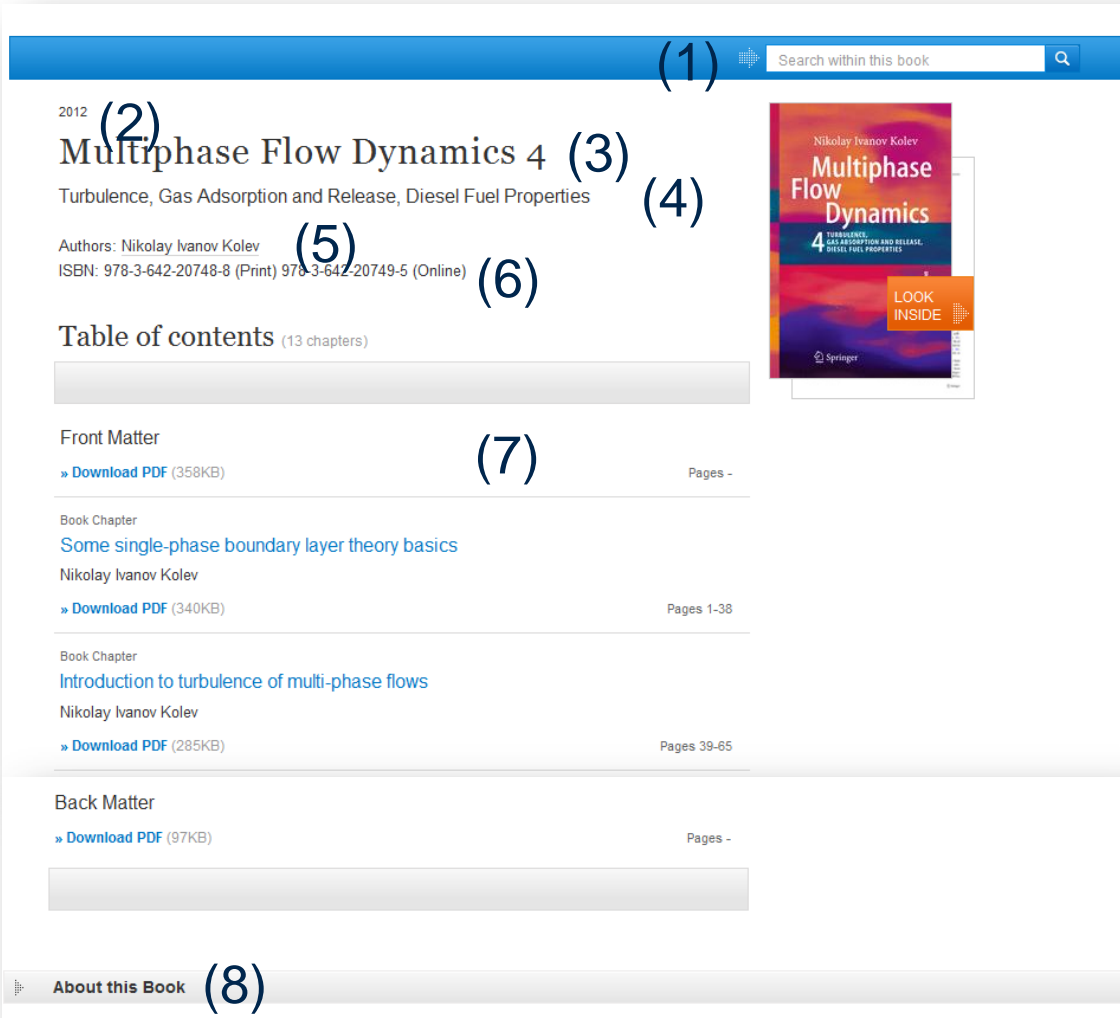
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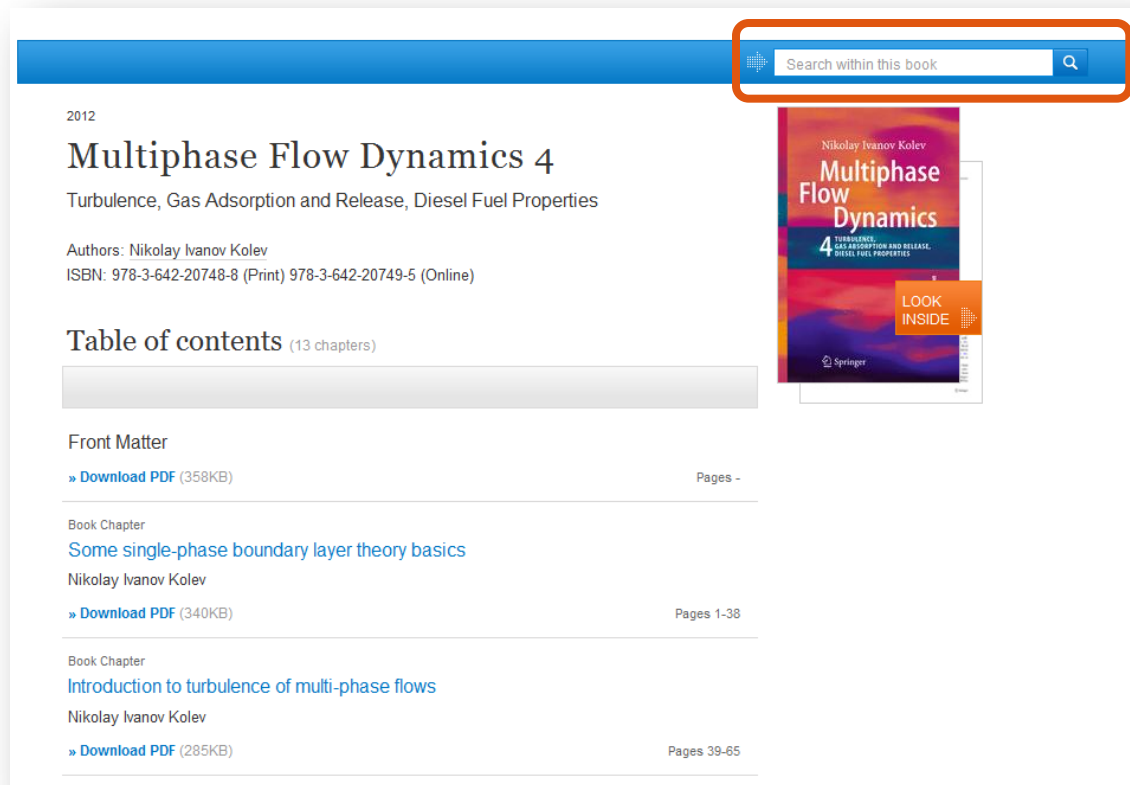
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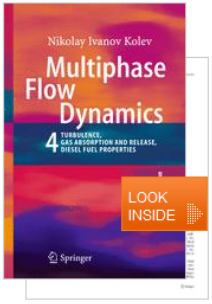
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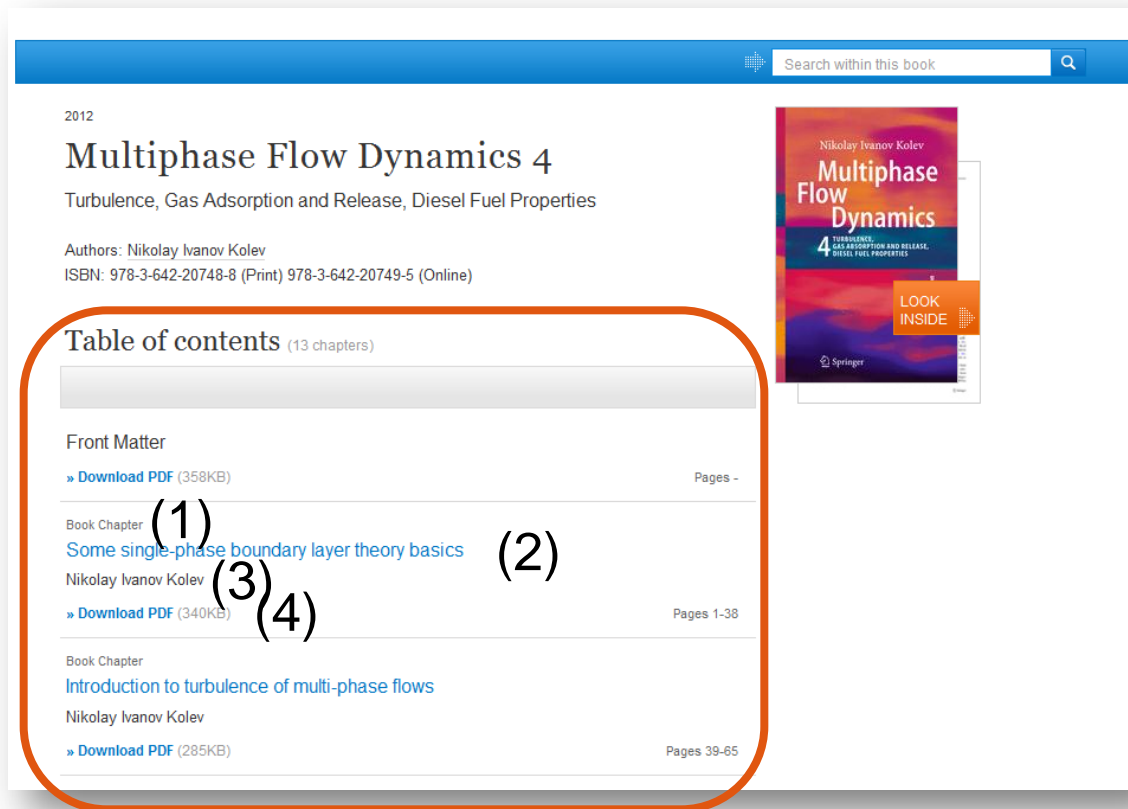


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In vector optimization one investigates optimal elements of a set in a pre-ordered space. The problem of determining these optimal elements, if they exist at all, is called a vector optimization problem. Problems of this type can be found not only in mathematics but also in engineering and economics. There, these problems are also called multiobjective (or multi criteria or Pareto) optimization problems or one speaks of multi criteria decision making. Vector optimization problems arise, for example, in functional analysis (the Hahn–Banach theorem, the lemma of Bishop–Phelps, Ekeland’s variational principle), multiobjective programming, multi-criteria decision making, statistics (Bayes solutions, theory of tests, minimal covariance matrices), approximation theory (location theory, simultaneous approximation, solution of boundary value problems) and cooperative game theory (cooperative n player differential games and, as a special case, optimal control problems). In the last decades vector optimization has been extended to problems with set-valued maps. This field, called set optimization, has important applications to variational inequalities and optimization problems with multivalued data.

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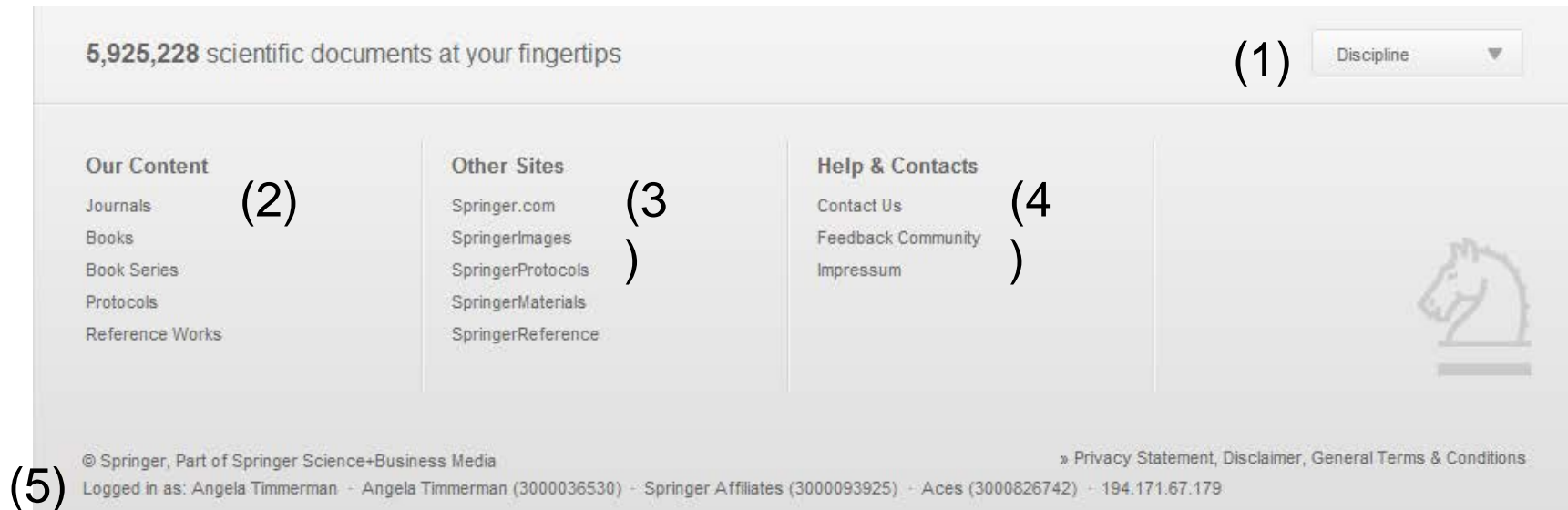
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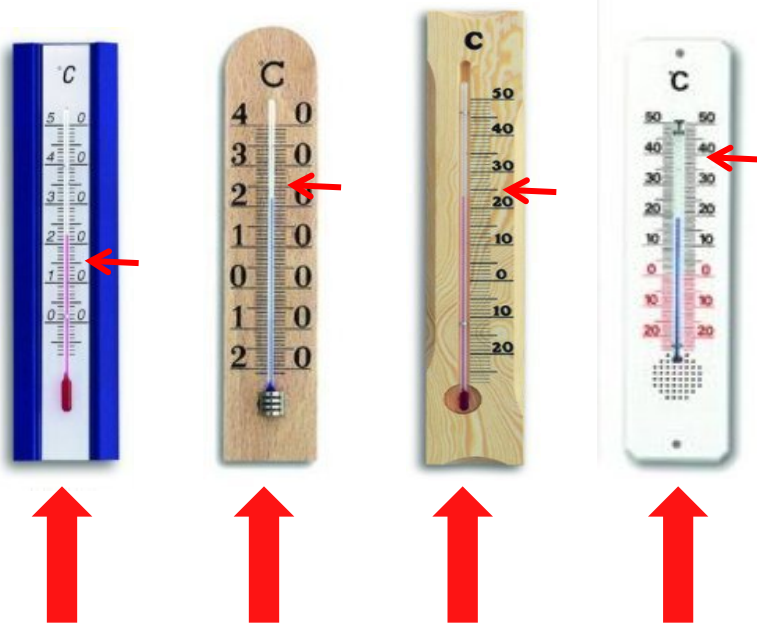
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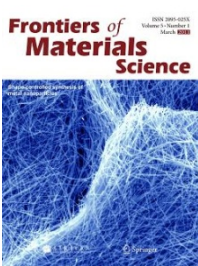
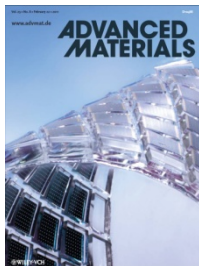


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| 1 | <chem>C6H4(OH)2</chem> | <chem>C6H4(OH)2</chem> | 0.0 | B, C, D, A, H, R, S, I, 8002 |
| 2 | <chem>C6H4(OH)2</chem> | <chem>C6H4(OH)2</chem> | 0.0 | B, H, A, I, H, R, S, I, 8002 |
| 3 | <chem>C6H4(OH)2</chem> | <chem>C6H4(OH)2</chem> | 0.0 | H, A, I, 8002 |



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|----|-----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------|-----------------|---|
| 1 | 1 H | 1 D | 1 T | | | | | | | | | | | | | | | 2 He | K |
| 2 | 3 Li | 4 Be | | | | | | | | | | | 5 B | 6 C | 7 N | 8 O | 9 F | 10 Ne | L |
| 3 | 11 Na | 12 Mg | | | | | | | | | | | 13 Al | 14 Si | 15 P | 16 S | 17 Cl | 18 Ar | M |
| 4 | 19 K | 20 Ca | 21 Sc | 22 Ti | 23 V | 24 Cr | 25 Mn | 26 Fe | 27 Co | 28 Ni | 29 Cu | 30 Zn | 31 Ga | 32 Ge | 33 As | 34 Se | 35 Br | 36 Kr | N |
| 5 | 37 Rb | 38 Sr | 39 Y | 40 Zr | 41 Nb | 42 Mo | 43 Tc | 44 Ru | 45 Rh | 46 Pd | 47 Ag | 48 Cd | 49 In | 50 Sn | 51 Sb | 52 Te | 53 I | 54 Xe | O |
| 6 | 55 Cs | 56 Ba | * | 72 Hf | 73 Ta | 74 W | 75 Re | 76 Os | 77 Ir | 78 Pt | 79 Au | 80 Hg | 81 Tl | 82 Pb | 83 Bi | 84 Po | 85 At | 86 Rn | P |
| 7 | 87 Fr | 88 Ra | ** | 104 Rf | 105 Db | 106 Sg | 107 Bh | 108 Hs | 109 Mt | 110 Ds | 111 Rg | 112 Cn | 113 | 114 | 115 | 116 | 117 | 118 | Q |
| * | | 57 La | 58 Ce | 59 Pr | 60 Nd | 61 Pm | 62 Sm | 63 Eu | 64 Gd | 65 Tb | 66 Dy | 67 Ho | 68 Er | 69 Tm | 70 Yb | 71 Lu | | | |
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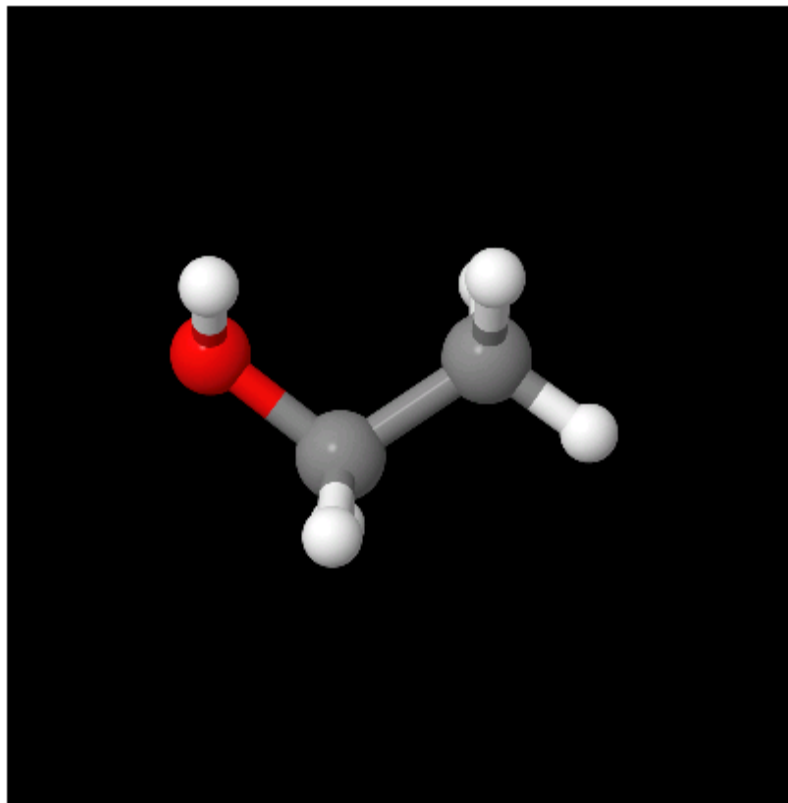
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Ethanol



3D Substance Structure



Structural Formula

General information

| | |
|--------------------------|--|
| Name | Ethanol |
| Molecular Formula | C ₂ H ₆ O |
| Element system | C-H-O |
| CAS-RN | 64-17-5, 8000-16-6, 8024-45-1, 121182-78-3 |
| InChI | <input type="text" value="InChI=1S/C2H6O/c1-2-3/h3H,2H2,1H3"/> |
| InChI Key | LFQSCWFLJHTTHZ-UHFFFAOYSA-N |

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C2H6O and C4H4F6O  

Thermodynamics > Thermodynamical Properties > Binary Fluid Systems > Heats of Mixing and Solution > Fluoroethers and Primary linear-alkyl monoalcohols

C2H6O and C4H3F7O  

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C2H6O and C4H6O3  

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CAS Registry Number: 25617-97-4 ... Metadata - Molecular
Length: λ [μm] 1.80 1.90 2.0 ... and doping) [76Ka2]: Change in

Compounds > Electronic Transport and Optical

refractive index ... Metadata - CAS Registry Number:
GaN) property: optical properties, ... of the absorption

Molecular Formula: GaN ... Fulltext: GaN, physical properties
State Commun. (1992) 81, 23-26. ... localization of as-grown

Compounds > Lattice Properties > Gallium nitride

CAS Registry Number: 25617-97-4 ... Metadata - Molecular
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...nschweig: Vieweg, 1981. **81K** Kao, K. C., Hwang,

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substance: boron nitride (BN)
property: properties of wurtzite-type

Fig. 1. Crystal structures of four modifications of boron nitride

For crystal structure see Fig. 1.

w-BN is generally produced in very small quantities. Thus, the measurement of its properties is difficult.

Electronic properties

band structure: Fig. 2

All recent calculations yield indirect band structure.

energy gap

| | |
|-----------------------|---------|
| $E_{g,ind}(\Gamma-K)$ | 5.81 eV |
| $E_{g,dir}(\Gamma)$ | 8.0 eV |
| $E_{g,dir}(M)$ | 9.3 eV |
| $E_{g,dir}(L)$ | 10.7 eV |
| $E_{g,dir}(A)$ | 10.6 eV |
| $E_{g,dir}(H)$ | 12.8 eV |
| $E_{g,dir}(K)$ | 11.7 eV |

structure of valence band

| | |
|-------------------------|----------|
| $E_{v,max} - E_{v,min}$ | 21.0 eV |
| E_{π} | 11.76 eV |
| E_{σ} | 6.28 eV |
| $E_{g,\sigma\pi}$ | 2.93 eV |

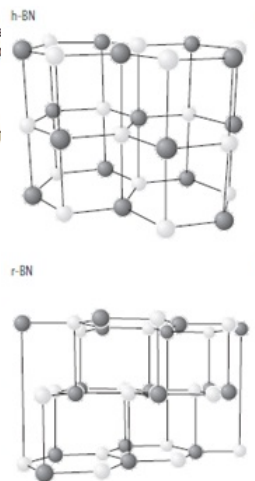
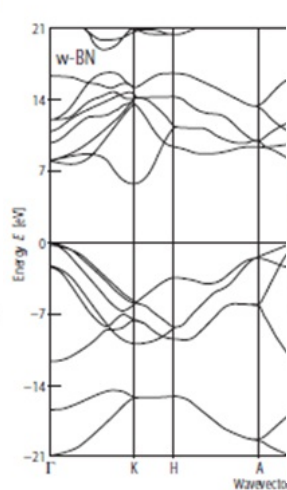
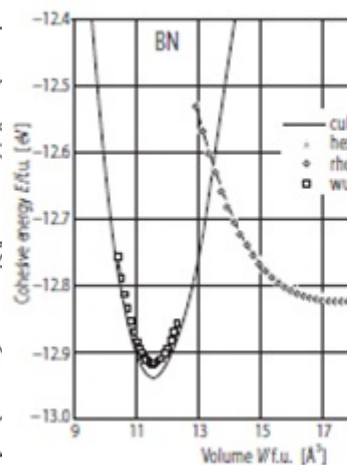


Fig. 2. w-BN. Band structure, calculated with



Cohesive energies of c-BN, w-BN, h-BN



Further properties

cohesive energy

see Fig. 9

ΔE_0 0.011 eV/atom difference to E_0 of c-BN

density

| | | | |
|-----|--------------------------|---------------------|-------------------|
| d | 3.473 g cm ⁻³ | standard conditions | X-ray diffraction |
| | 3.49 g cm ⁻³ | at 25 °C | |
| | 3.470 g cm ⁻³ | at 25 °C | |

Debye temperature

| | | | |
|------------|---------------|-------------|-------------|
| Θ_D | 1594(2) K | $T = 300$ K | calorimetry |
| | (1760 ± 60) K | $T = 50$ K | |
| | (1460 ± 70) K | | |

Temperature dependence of Debye temperature: see Fig. 10.

entropy, enthalpy, heat capacity

| | | |
|------------------------|--|-------------|
| $S_{298.15}^0$ | (7.239 ± 0.017) J mol ⁻¹ K ⁻¹ | |
| $H_{298.15}^0 - H_0^0$ | (1541 ± 3) J mol ⁻¹ | |
| $C_p(298.15)$ | (16.45 ± 0.02) J mol ⁻¹ K ⁻¹ | |
| $C_p^0(T)$ | 48.351(T ² /(T ² - 8.369T + 68306.334)) ² J mol ⁻¹ K ⁻¹ | |
| | $T = 420...980$ K | calorimetry |

For low temperature values of C_p see Fig. 11.

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Al-Fe-Na-O-Ti

Al-Fe-O-Si-Ti

Al-B-Fe-Mg-O-Ti

Al-Ca-Fe-Mg-Mn-Ti

Al-Ca-Fe-O-Si-Ti

Al-Ca-Fe-O-Ti-Zr

Al-Ce-Fe-O-Si-Ti

Al-Co-Cu-Fe-Ni-Ti

Al-Cr-Fe-Mg-O-Ti

Al-Cr-Fe-Nb-Ni-Ti

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Al-Fe-Mg-O-Si-Ti

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Al-Fe-Mo-O-Sr-Ti

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| IA | IIA | IIIB | IVB | VB | VIB | VIIb | VIIIb | VIIIb | VIIIb | IB | IIB | IIIA | IVA | VA | VIA | VIIA | VIIIA | | |
| 1 H | 2 D | 3 T | | | | | | | | | | 5 B | 6 C | 7 N | 8 O | 9 F | 10 Ne | K | |
| 2 Li | 4 Be | | | | | | | | | | | 13 Al | 14 Si | 15 P | 16 S | 17 Cl | 18 Ar | L | |
| 3 Na | 12 Mg | | | | | | | | | | | | | | | | | M | |
| 4 K | 20 Ca | 21 Sc | 22 Ti | 23 V | 24 Cr | 25 Mn | 26 Fe | 27 Co | 28 Ni | 29 Cu | 30 Zn | 31 Ga | 32 Ge | 33 As | 34 Se | 35 Br | 36 Kr | N | |
| 5 Rb | 38 Sr | 39 Y | 40 Zr | 41 Nb | 42 Mo | 43 Tc | 44 Ru | 45 Rh | 46 Pd | 47 Ag | 48 Cd | 49 In | 50 Sn | 51 Sb | 52 Te | 53 I | 54 Xe | O | |
| 6 Cs | Ba | ** | Hf | Ta | W | Re | Os | Ir | Pt | Au | Hg | 111 Tl | 82 Pb | 83 Bi | 84 Po | 85 At | 86 Rn | P | |
| 7 Fr | Ra | ** | Rf | Db | Sg | Bh | Hs | Mt | Ds | Rg | Cn | 113 Nh | 114 Fl | 115 Mc | 116 Lv | 117 Ts | 118 Og | Q | |
| | | | | | | | | | | | | | | | | | | | |
| | 57 La | 58 Ce | 59 Pr | 60 Nd | 61 Pm | 62 Sm | 63 Eu | 64 Gd | 65 Tb | 66 Dy | 67 Ho | 68 Er | 69 Tm | 70 Yb | 71 Lu | | | | |
| | ** | 89 Ac | 90 Th | 91 Pa | 92 U | 93 Np | 94 Pu | 95 Am | 96 Cm | 97 Bk | 98 Cf | 99 Es | 100 Fm | 101 Md | 102 No | 103 Lr | | | |

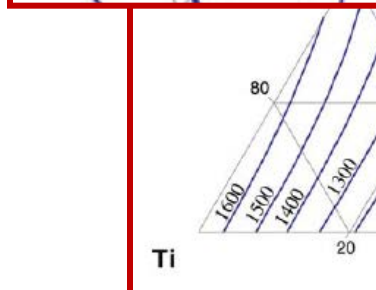
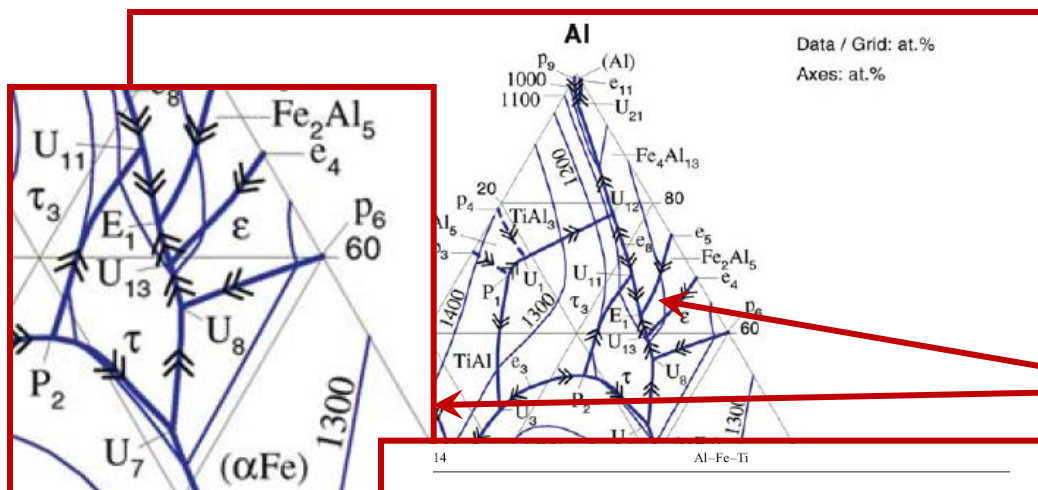
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14 Al-Fe-Ti

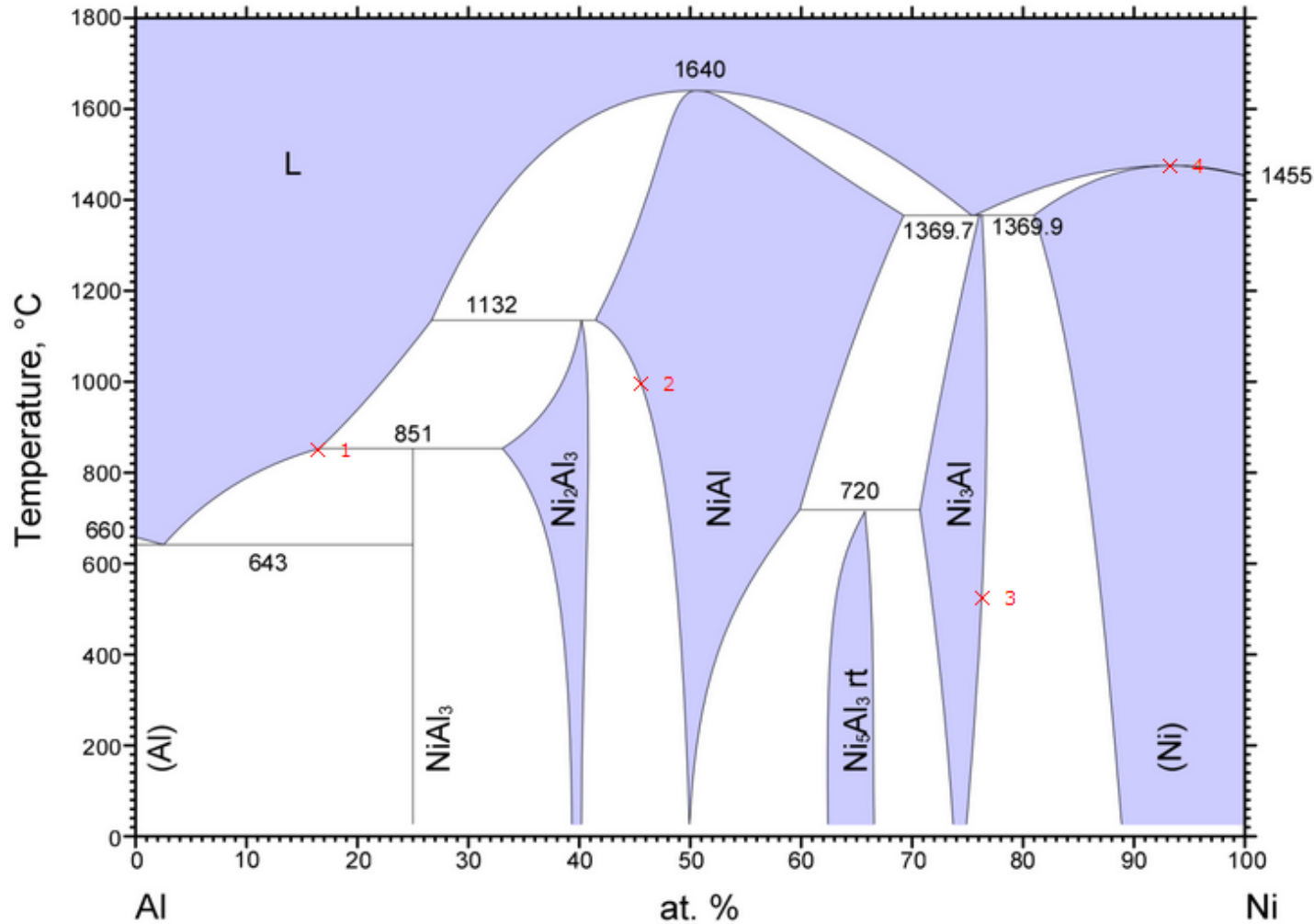
| Phase/ Temperature Range [°C] | Pearson Symbol/ Space Group/ Prototype | Lattice Parameters [pm] | Comments/References |
|-------------------------------------|--|--|---|
| | | $a = 496.61$ $c = 806.28$ | [2006Yan], $Ti_{33.3}Fe_{33.3}Al_{33.4}$ annealed at 1000°C |
| | | $a = 503.66$ $c = 819.71$ | [2006Yan], as-cast $Ti_{34}Fe_{17}Al_{49}$ |
| TiFe ≤ 1317 | $cP2$ $Pm\bar{3}m$ CsCl | $a = 297.6$ | solid solubility ranges from 49.8 to 51.8 at.% Ti [V-C] |
| * τ_1 , TiFe ₂ Al | $cF16$ $Fm\bar{3}m$ Cu ₂ AlMn | $a = 587.9$ | [1983Bus], annealed at 900°C for 14 days |
| * τ_2 | cF^* $F\bar{4}3m$ | $a = 1211.0$ $a = 1209.59$ | [1995Pal], at $Ti_{50.9}Fe_{24.5}Al_{24.6}$ [2006Gry], $Ti_{43}Fe_{23}Al_{33}$ annealed at 900°C; both X-ray and neutron diffraction data |
| * τ_2' | $cF116$ $Fm\bar{3}m$ Th_6Mn_{23} | $a = 1199.0$ $a = 1182.0$ $a = 1203.8$ $a = 1207.6$ $a = 1209.9$ $a = 1211.0$ $a = 1189.0$ | [1967Mar, 2000Mab] [1981Sei] [1995Pal], at $Ti_{30.8}Fe_{21.4}Al_{47.8}$ [1999Gor], at $Ti_{38.4}Fe_{23}Al_{38.6}$ [1999Gor], at $Ti_{42.2}Fe_{23.1}Al_{34.7}$ [1999Lev] [2003Gry] at $Ti_{20.3}Fe_{23.7}Al_{56}$ |
| filled Th_6Mn_{23} | | $a = 1209.2$ | [2003Gry] at $Ti_{42}Fe_{23.3}Al_{34.7}$ |
| filled Th_6Mn_{23} | | $a = 1199.44$ | [2006Gry], $Ti_{22}Fe_{23}Al_{55}$ annealed at 900°C; neutron diffraction data |

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Redrawn Phase Diagram

Concentration Range full composition; 0-100 at.% Ni

Enlargement 59/59



at.% Al -
at.% Ni -
°C -

Point 1
at.% Al 83.6
at.% Ni 16.4
°C 850.8

Point 2
at.% Al 54.4
at.% Ni 45.6
°C 996.5

Point 3
at.% Al 23.6
at.% Ni 76.4
°C 523.9

Point 4
at.% Al 6.7
at.% Ni 93.3
°C 1477

Clear All

Clear Last

Ethanol / Water

Vapor-Liquid Equilibrium Data Set 29810

Components

| No. | Formula | Molar Mass | CAS Registry Number | Name |
|-----|---------------------------------|------------|---------------------|---------|
| 1 | C ₂ H ₆ O | 46.069 | 64-17-5 | Ethanol |
| 2 | H ₂ O | 18.015 | 7732-18-5 | Water |

Constant Value

| | | |
|----------|--------|-----|
| Pressure | 100.00 | kPa |
|----------|--------|-----|

Data Table

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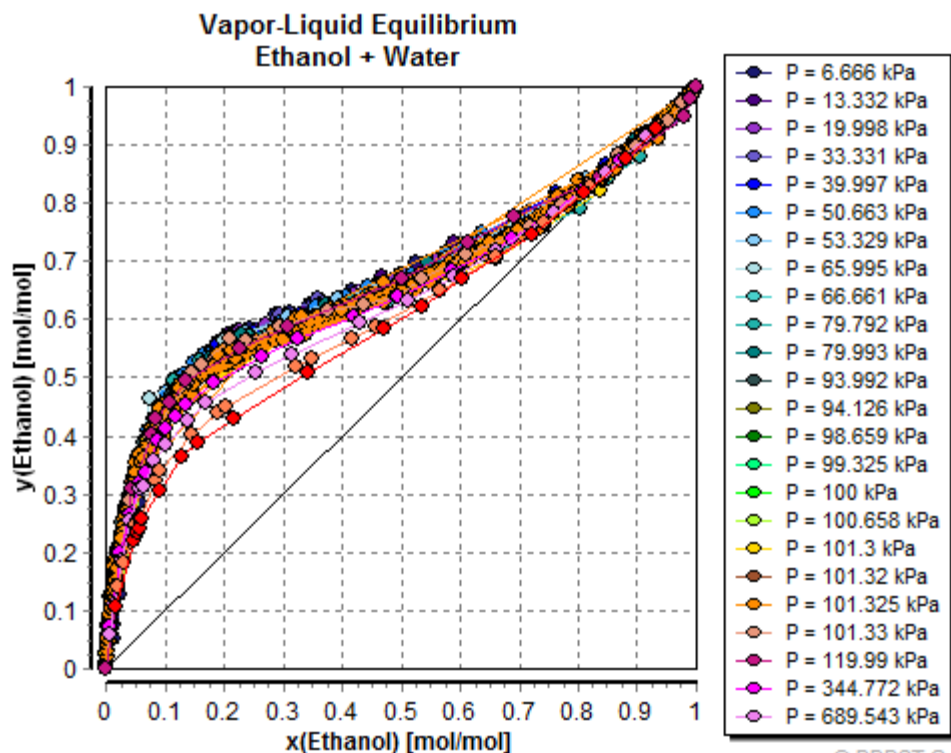
| T [K] | x ₁ [mol/mol] | y ₁ [mol/mol] |
|--------|--------------------------|--------------------------|
| 351.07 | 0.79850 | 0.81600 |
| 350.99 | 0.84910 | 0.85520 |
| 350.99 | 0.90060 | 0.89830 |
| 350.96 | 0.92040 | 0.91750 |
| 351.04 | 0.94010 | 0.93680 |
| 351.07 | 0.95980 | 0.95630 |
| 351.08 | 0.98010 | 0.97800 |
| 351.11 | 0.99051 | 0.98940 |
| 351.07 | 0.99837 | 0.99815 |

(T - temperature, x - liquid mole fraction, y - vapor mole fraction)

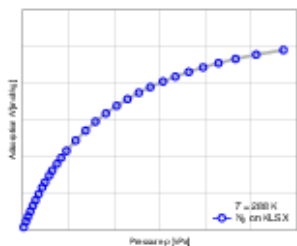
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|--|
| Zhang L., Ge Y., Ji D., Ji J.: A Case Study for the System Water + Ethanol + 1-Hexyl-3-methylimidazolium Chloride. J.Chem.Eng.Data 54 (2009) 2322-2329 |



Adsorption Isotherm for Nitrogen on KLSX (Zeolite) Temperature $T = 288\text{ K}$



Access
Datasheet

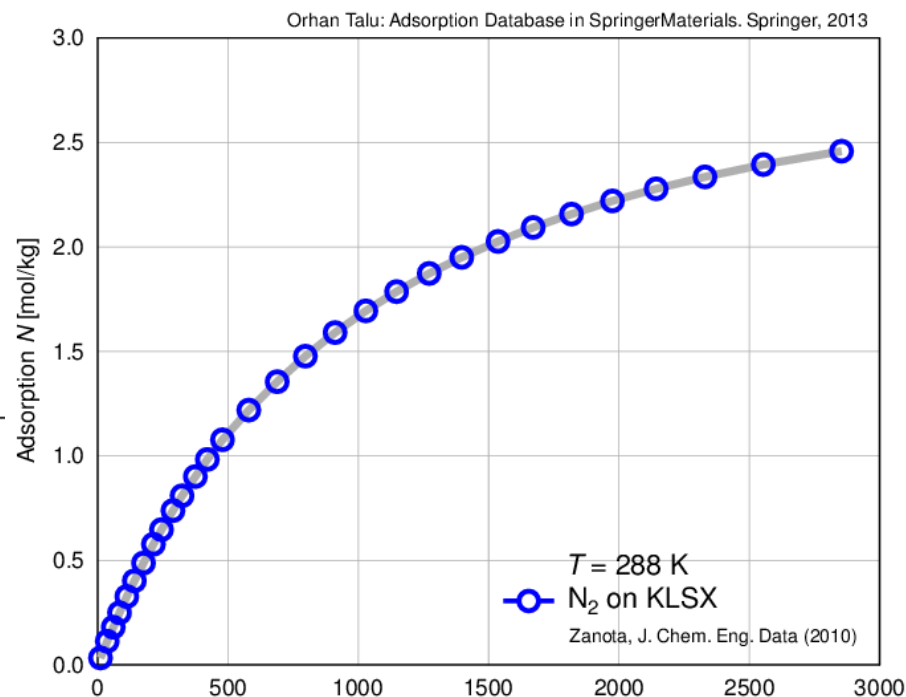
Access to the full data set [ads000526.html](#) requires subscription.

Adsorbate: Nitrogen

| | |
|---------------------------------------|----------------------------|
| Sum Formula | N ₂ |
| Molecular Weight | 28.0134 |
| CAS Number | 7727-37-9 |
| Normal Boiling Point T_{nbp} | 77.34 K |
| Critical Temperature T_c | 126.19 K |
| Critical Pressure p_c | 3398 kPa |
| Critical Volume V_c | 89.45 cm ³ /mol |

Adsorbent: KLSX

| | |
|----------------|---|
| Solid Class | Zeolite |
| Solid Subclass | FAU |
| Form | powder |
| Supplier | Tricat Zeloites GmbH K |
| Description | zeolite Area: 501 m ² /g Volume: 0.201 cm ³ /g Si/Al = 1.0 |



Data Downloads

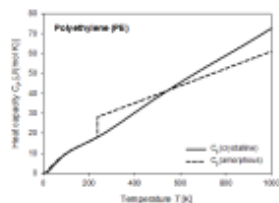
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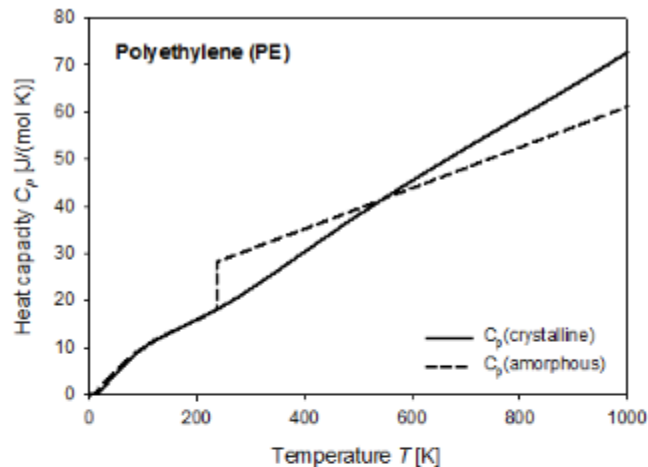
Zanota, M.L., Heymans, N., Gilles, F., Su, B.L., Frere, M., De Weireld, G.: J. Chem. Eng. Data **55** (2010) 448.

Thermal properties

- Monomer
- Polymer (IUPAC)
- Polymer (CAS)
- CAS Registry Number
- Glass transition temperature
- Melting temperature
- Temperature range of experimental heat capacity



Polyethylene (PE): Experimental and Calculated Heat Capacity – Amorphous State



| T [K] | Solid Experimental [J·K ⁻¹ ·mol ⁻¹] | Solid Index | Solid Calculated [J·K ⁻¹ ·mol ⁻¹] | Solid Deviation [%] | Melt Experimental [J·K ⁻¹ ·mol ⁻¹] | Melt Index | Melt Calculated [J·K ⁻¹ ·mol ⁻¹] | Melt Deviation [%] |
|-------|--|-------------|--|---------------------|---|------------|---|--------------------|
| 0.100 | 0.0000 | 1 | 0.0000 | - | - | - | - | - |
| 0.200 | 0.0000 | 1 | 0.0000 | - | - | - | - | - |
| 0.300 | 0.0000 | 1 | 0.0000 | - | - | - | - | - |
| 0.400 | 0.0000 | 1 | 0.0000 | - | - | - | - | - |
| 0.500 | 0.0000 | 1 | 0.0000 | - | - | - | - | - |
| 0.600 | 0.0000 | 1 | 0.0000 | - | - | - | - | - |
| 0.700 | 0.0000 | 1 | 0.0000 | - | - | - | - | - |
| 0.800 | 0.0000 | 1 | 0.0000 | -5.3240 | - | - | - | - |
| 0.900 | 0.0000 | 1 | 0.0000 | -2.2550 | - | - | - | - |
| 1.000 | 0.0000 | 1 | 0.0000 | -0.2090 | - | - | - | - |
| 1.200 | 0.0010 | 1 | 0.0010 | 1.2400 | - | - | - | - |
| 1.400 | 0.0010 | 1 | 0.0010 | 1.0130 | - | - | - | - |
| 1.600 | 0.0020 | 1 | 0.0020 | -0.1020 | - | - | - | - |
| 1.800 | 0.0020 | 1 | 0.0020 | -1.4760 | - | - | - | - |
| 2.000 | 0.0030 | 1 | 0.0030 | -3.3420 | - | - | - | - |

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Place the cheese  in
a bowl, add egg 
salt , onions ,
parsley , chilly
peppers , and the
capers .
Stir with a fork until well
mixed.



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3 Methods

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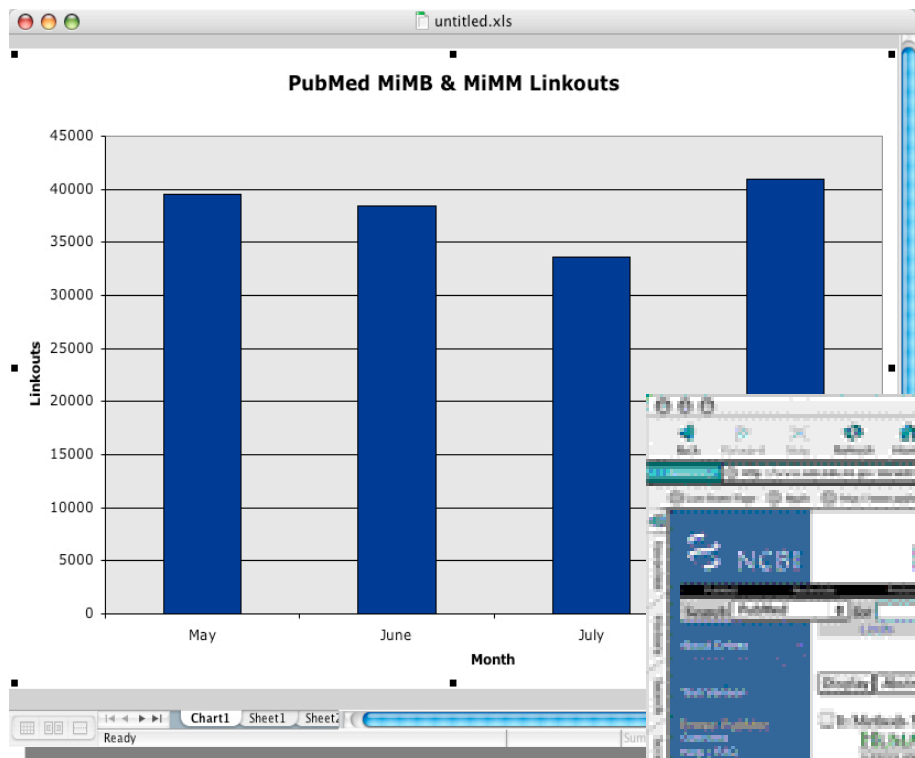
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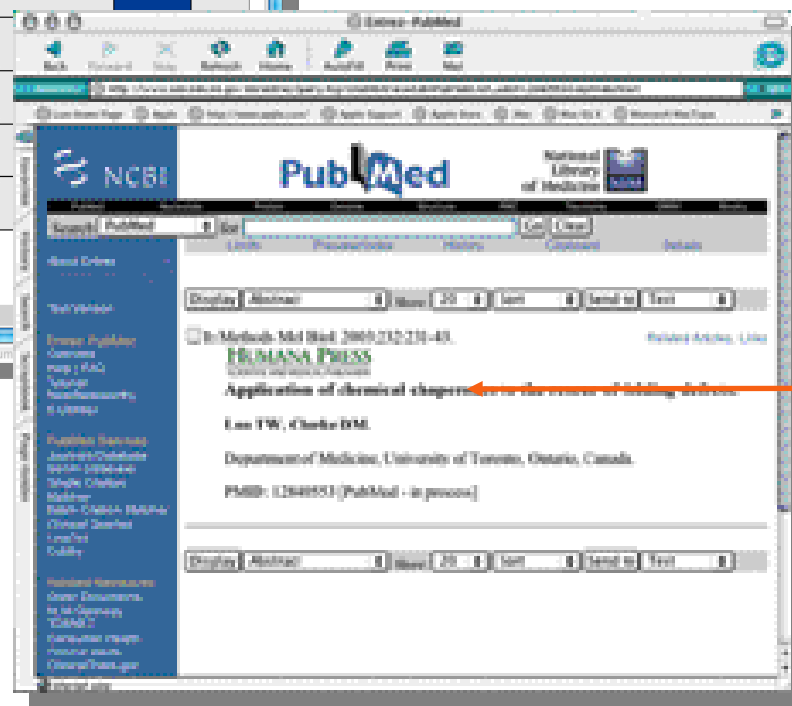
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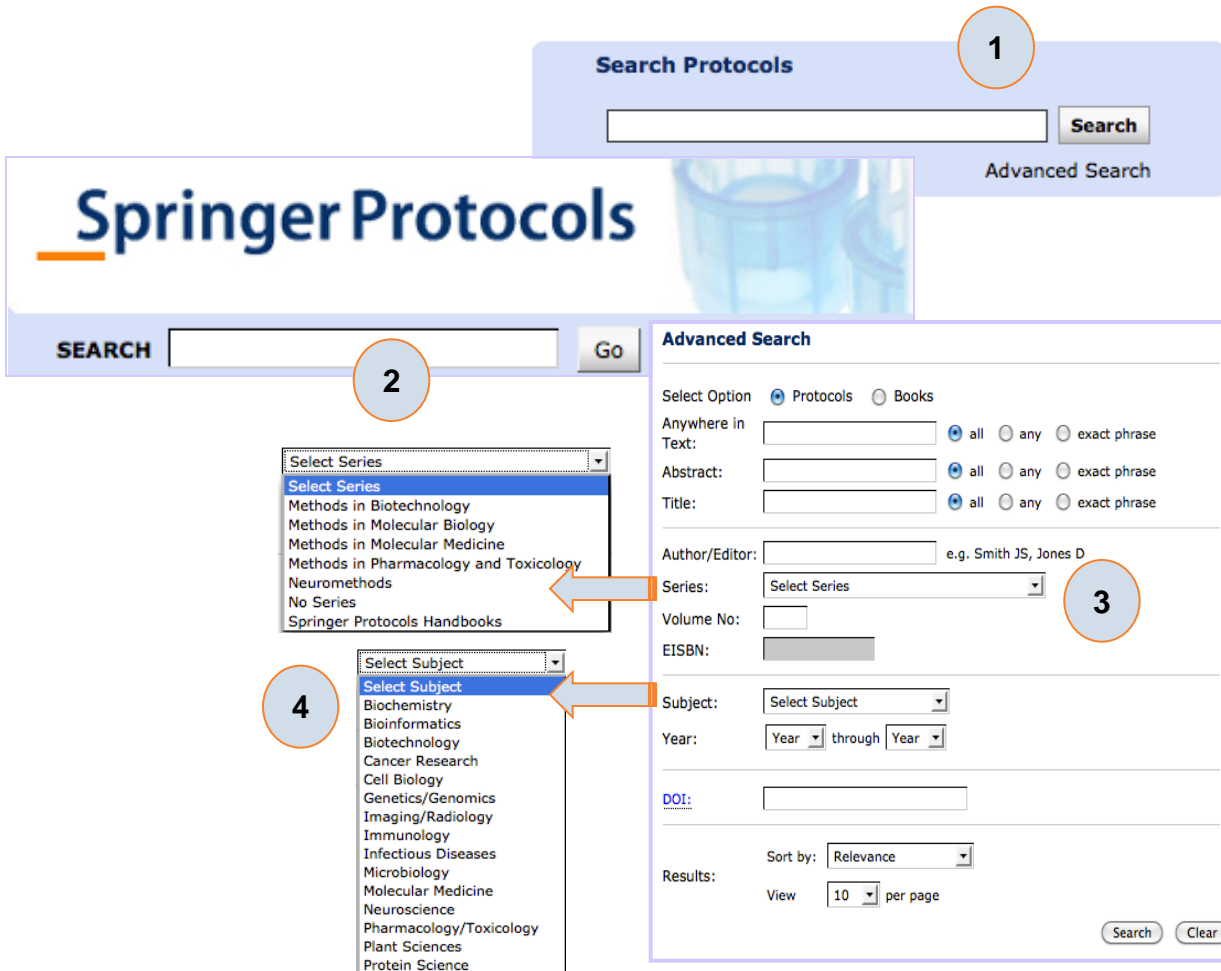
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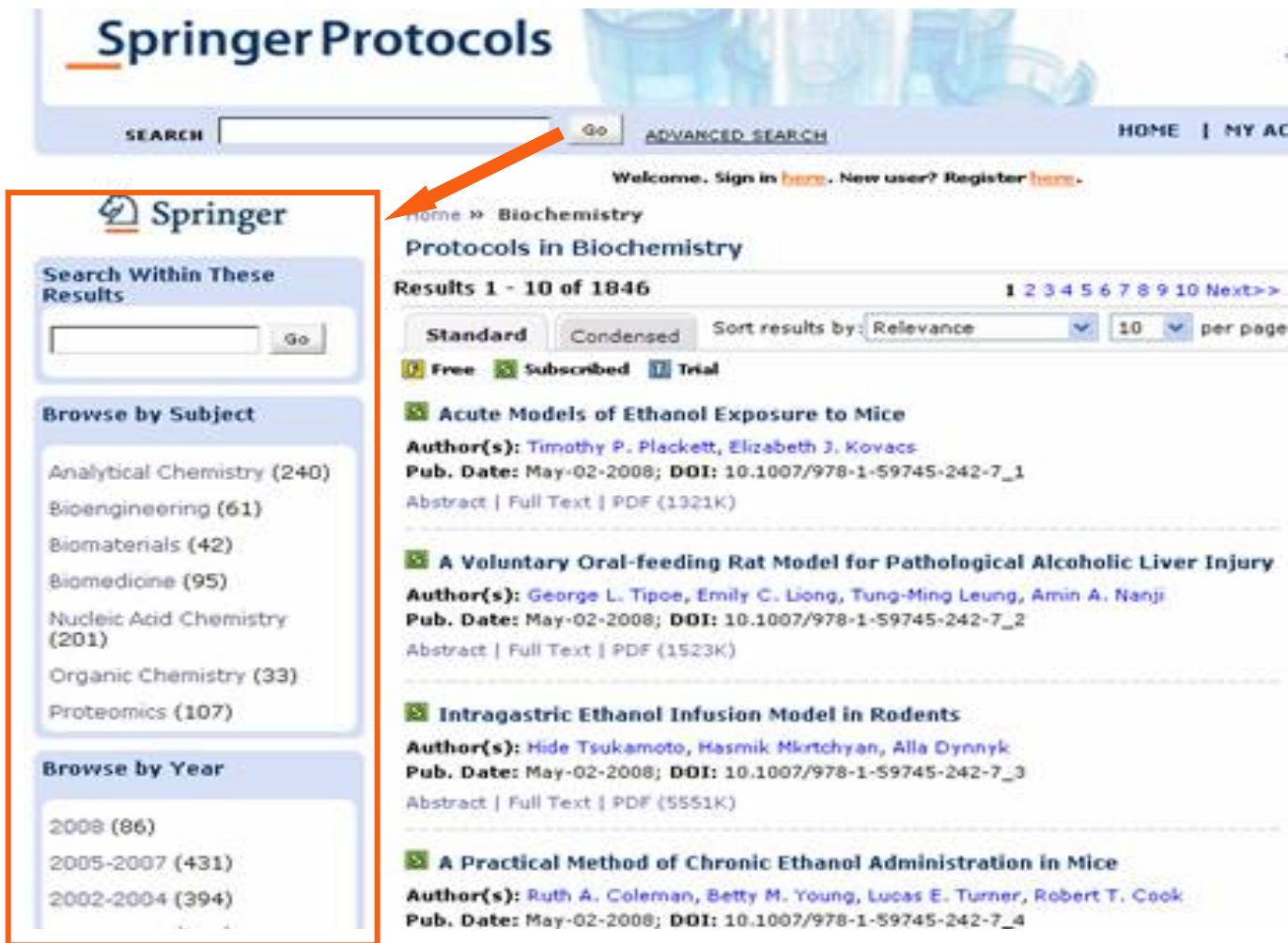
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 2. Materials
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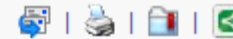
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3. Immunodetection of PrP^{Sc} Using Western and Slot Blotting Techniques

By: [Hanna Gyllberg¹](#), [Kajsa Löfgren¹](#)

Abstract

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Prion infectivity is often linked to presence of the protease-resistant isoform of prion protein (PrP), PrP^{res}; therefore, it is of highest interest to have convenient methods for rapid detection of PrP^{res} in the research laboratory. For detection of PrP^{res} in model systems to confirm infectivity, there are several methods that can be applied. This chapter focuses on detection of PrP^{res} by proteinase K digestion followed by Western blot, which is the only method that is both quantitative and qualitative. For large-scale screening of PrP^{res} content in samples, the dot blot method offers a great advantage for detecting PrP^{res}, and this method is also thoroughly described in this chapter.

Affiliation(s): (1) Department of Biochemistry and Biophysics, Stockholm University, Stockholm, Sweden

Book Title: [Prion Protein Protocols](#)








Series: Methods in Molecular Biology | **Volume:** 459 | **Pub. Date:** Jun-04-2008 | **Page Range:** 35-48 | **DOI:** 10.1007/978-1-59745-234-2_3

Subject: [Protein Science](#)








Key Words: [Dot blot](#) - [guanidinium thiocyanate](#) - [immunoprecipitation](#) - [nitrocellulose membrane](#) - [proteinase K digestion](#) - [PrP antibodies](#) - [PVDF membrane](#) - [reprobing](#) - [Western blot](#)

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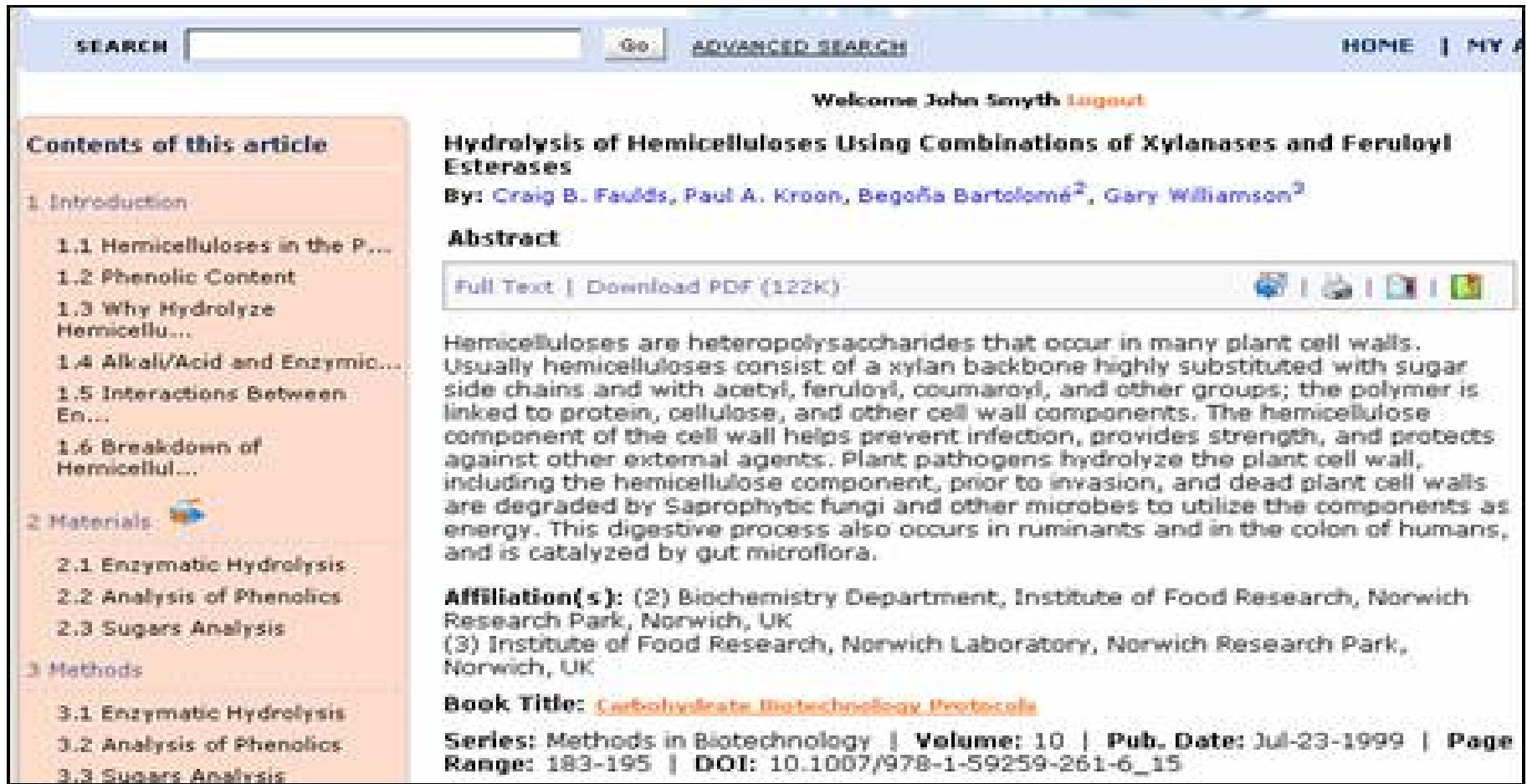
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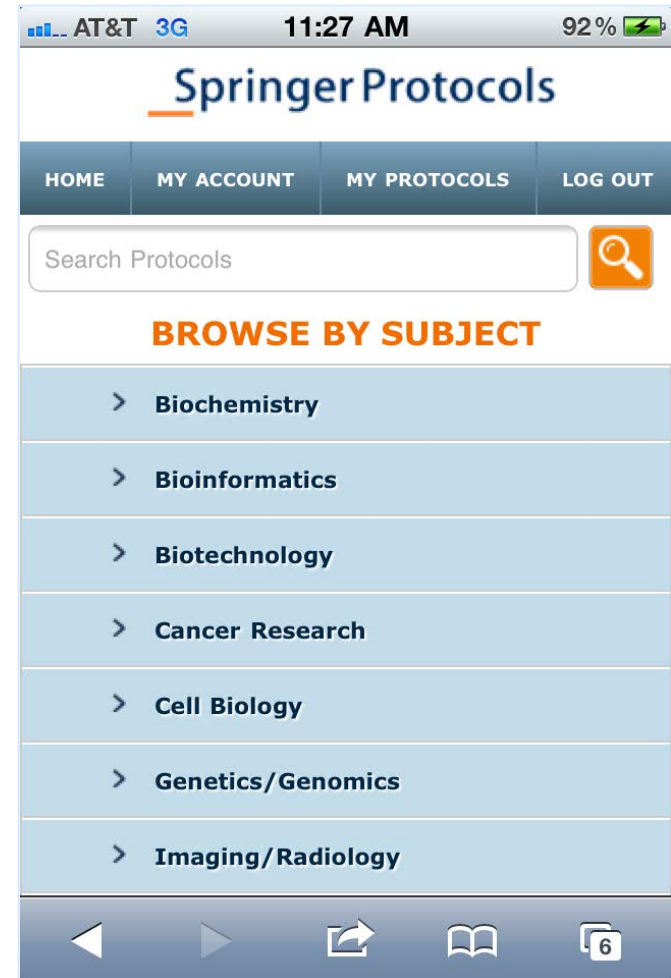
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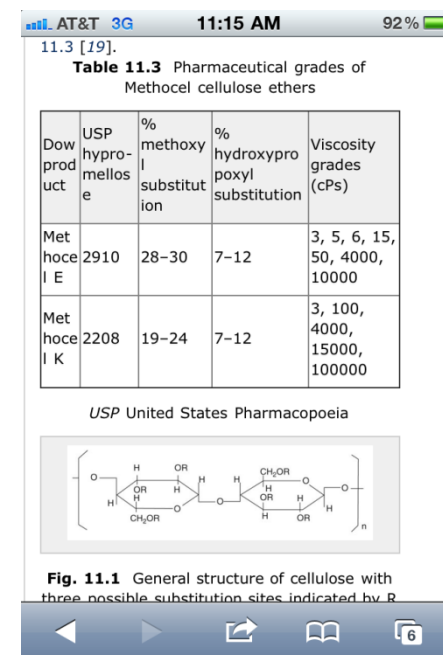
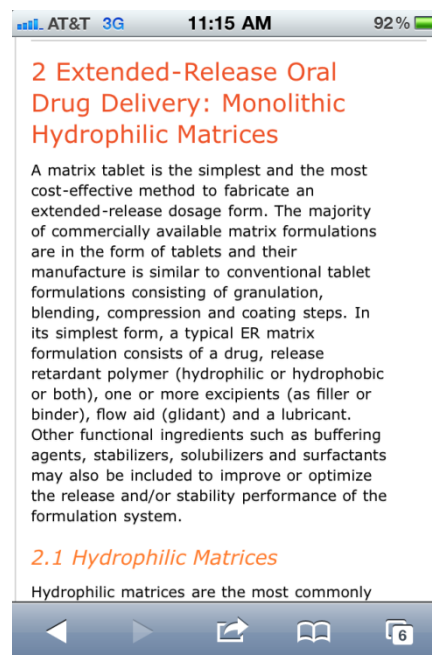
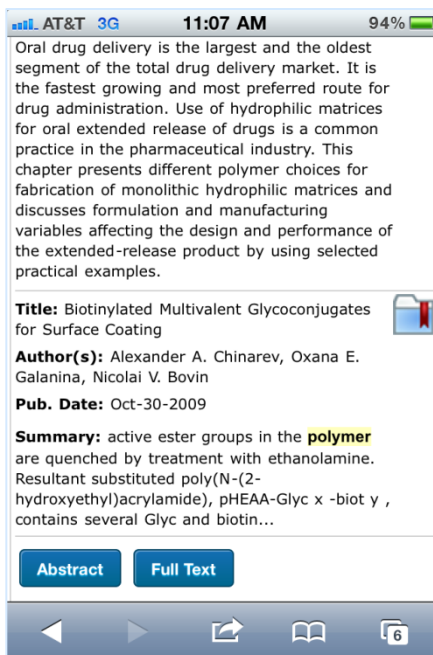
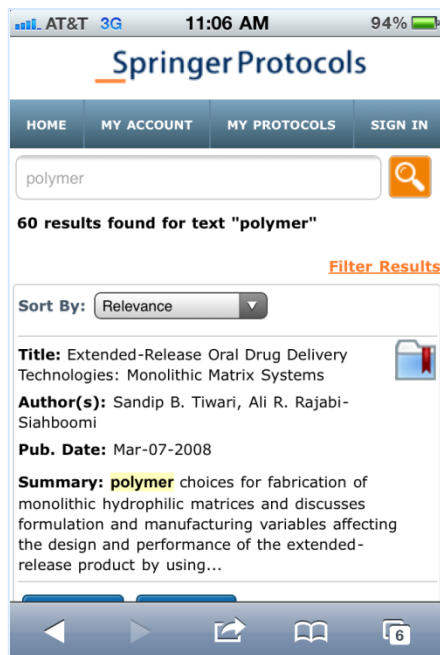


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