

*15<sup>th</sup> European NKOS Workshop  
Hannover, 9 September 2016*

# **Classification for collections mapping and query expansion**

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# Scientific libraries, U Pavia





# Scattered collections

- Science Library  
(physics+chemistry)
- Sci-Tech Library  
(math+geol+engineering)
- Medical Library

Each organized  
with local KOSs

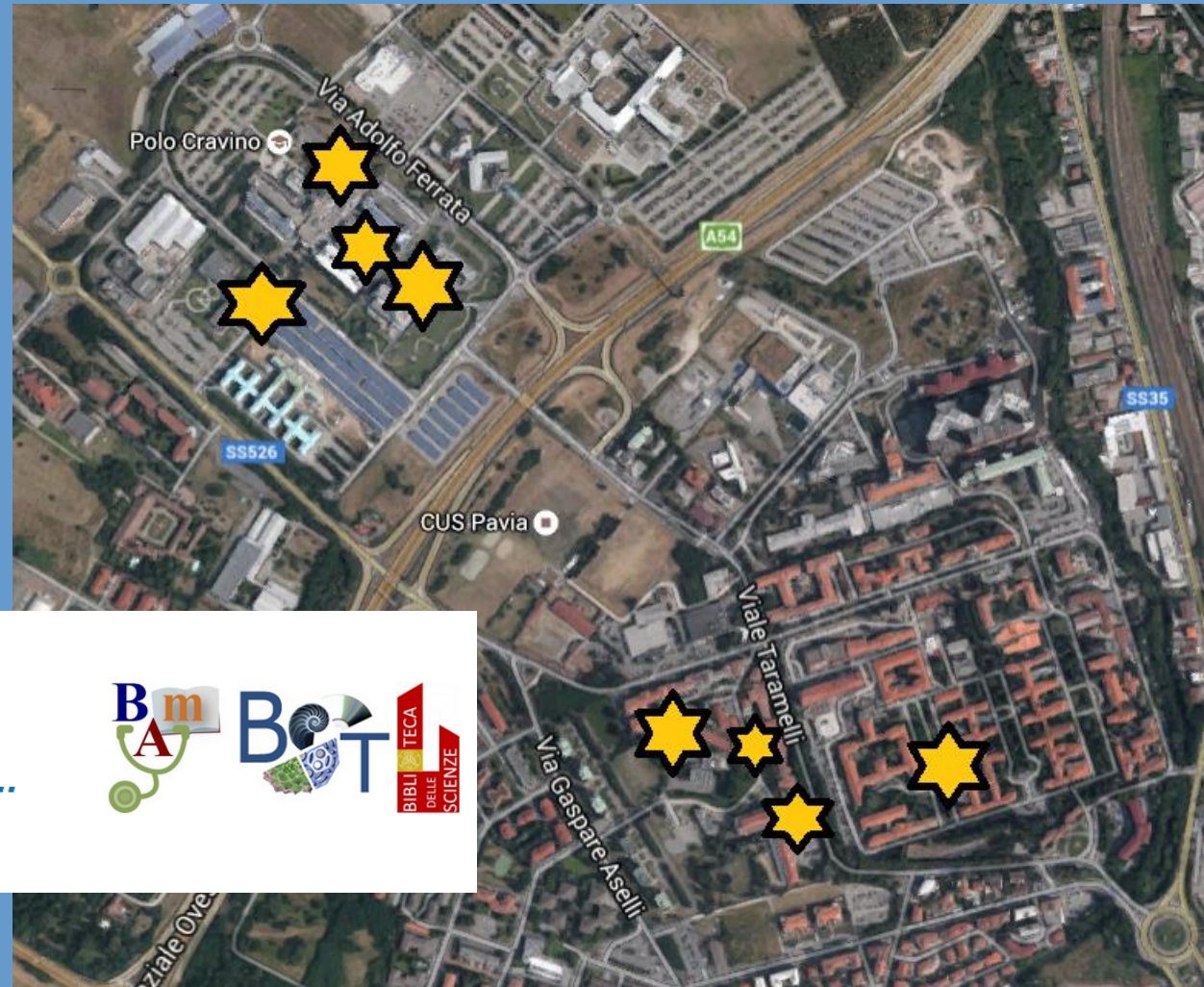


# Integrating collections through classification

DDC as a common language to gather data from different libraries into one catalogue and discovery tool

**SciGator**

*Explore University of Pavia scientific libraries...*







# SciGator

*Explore University of Pavia scientific libraries...*




[it]



*Choose the subject matter to be searched in our libraries:*













000	↓ <b>reference, information</b>	
000	↓ information and computer science	
100	↓ <b>philosophy, psychology</b>	
150	↓ psychology	
170	↓ ethics	
300	↓ <b>social sciences</b>	
300	↓ sociology	
320	↓ political sciences, demography, anthropology	
330	↓ economics	
340	↓ law	
360	↓ social problems and services	
370	↓ education	
400	↓ <b>languages</b>	
420	↓ English language	
500	↓ <b>pure sciences</b>	
510	↓ mathematics	
520	↓ astronomy	

# Mapping local schemes

Find books  on the shelf or  in the whole catalogue or  or including the related subjects

↑ 581	↓	plant morphology and physiology			
↑ 581.1	↓	plant physiology			 → 571 ≈ S.SPEC.35.CA
↑ 581.2	↓	plant pathology			 → 632 ≈ S.SPEC.34.HA
↑ 581.3	↓	plant genetics			 → 576.5 631.53
↑ 581.7	↓	plants of special environments, plant ecology			 ≈ S.SPEC.24.AH
↑ 581.9	↓	phytogeography, floras			 ≈ S.SPEC.24.AH S.FLORE

## See also:

↑ 571	↓	physiology in general			→ 581 612
↑ 576.5	↓	general genetics			→ 581.3 591.3 599.935 ≈ S.SPEC.
↑ 579.53	↓				→ 581.2
↑ 631.53	↓	plant breeding			→ 581.3
↑ 632	↓	plant pathology, biological and chemical control			→ 581.2
↑ S.SPEC.24.AH	↓	botanical ecology, phytogeography, geobotany			≈ 581.7 581.9

# Cross-discipline relationships

690 building ← 624 civil engineering

711.4 city planning ← 307 communities

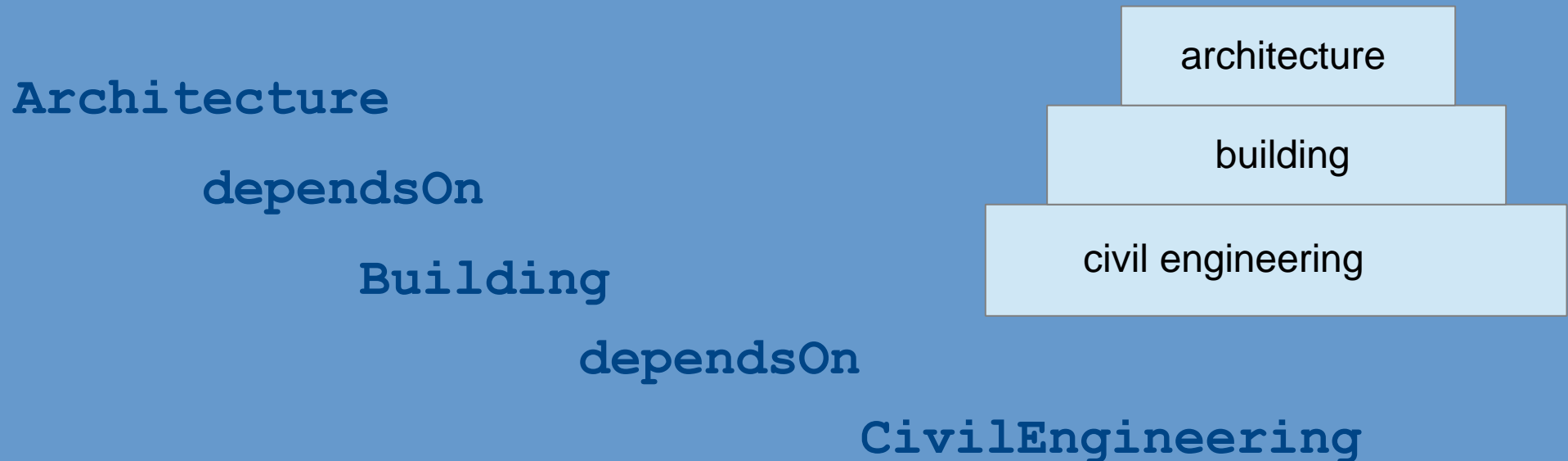
720 architecture ← 690 building

725.5 health buildings ← 610.28 biomedical  
instrumentation



# Existential dependence

Dependence in ontology (Lowe 2015)



No LOD representation yet, due to centralized priorities and DDC copyright issues ([dewey.info](http://dewey.info) discontinued)

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# Recording relationships









SQL query:

```
SELECT *  
FROM `dewey`  
LIMIT 290, 30
```

☐ Profiling [ [Edit](#) ] [ [Explain SQL](#) ] [ [Create PHP Code](#) ] [ [Refresh](#) ]

<< < Show : 30 row(s) starting from record # 320 > >> Page number: 10 ▾  
in horizontal ▾ mode and repeat headers after 100 cells

Sort by key: None ▾

			notation	caption	captione	scopenote	seealso1	seealso2	seealso3	seealso4	equivalent1
<input type="checkbox"/>			690	edilizia in generale	building in general		624	720			
<input type="checkbox"/>			690.24	manutenzione e riparazione	maintenance and restoration		720.28				
<input type="checkbox"/>			691	materiali da costruzione	building materials						
<input type="checkbox"/>			693	costruzioni con	buildings of						






# SciGator










Explore University of Pavia scientific libraries...

[it]















start




Find books  on the shelf or  in the whole catalogue  or including the related subjects

↑	690	↓	building in general				→ 720
↑	690.22	↓	safety actions in building				→ 344
↑	690.24	↓	maintenance and restoration				→ 720.28

## See also:

↑	344	↓	social law, safety, environment, nature reserves			→ 333.7 363 614 690.22 ≈ S.SPEC.32.BJ
↑	720	↓	architecture in general			→ 690
↑	720.28	↓	restoration, architectural drawing			→ 690.24
↑	AR17	↓				≈ 690
↑	AR22	↓				≈ 690
↑	AR24	↓				≈ 690.22

# Query expansion (PHP)

Find books  on the shelf or  in the whole catalogue or  or including the related subjects

	690	↓	building		
↑	690	↓	building in general	   → 624 720	
↑	690.22	↓	safety actions in building	   expand_in_the_catalogue	
↑	690.24	↓	maintenance and restoration	   → 720.28	
↑	691	↓	building materials	 	



# CATALOGO UNICO PAVESE

UNIVERSITA' DEGLI STUDI DI PAVIA



BIBLIONAUTS  
Opac

Collective

Libraries

Guide

OPAC - Catalogo Unico Pavese

en de es fr i

Home

Search

Browse

Advanced

Keyword

Utility



## Search results

Search terms used: (BC=PAV0U6 OR BC=PAV0U7 OR BC=PAV0U8) AND (CD=690\$ OR CD=624\$ OR LO=624\$ OR CD=720\$ OR LO=720\$ OR LO=690\$) Search results: 1852 List length: 30 Sort: Data (decescente), Autore, Titolo

Filter and sort

Full list

Full format

Forward

Expand list

End

Select one or more documents

Enter

Cancel

☐ 1/1852

**Pireddu, Giancarlo** . Economia dell'energia : i fondamenti / Giancarlo Pireddu ; presentazione di Ignazio Musu. - 2. ed. - Pavia : C.L.U., 2015. - XXIII, 738 p. : ill. ; 24 cm.

Ateneo. Economia: 720 00481

Ateneo. Scienza e Tecnica: Tamburo 333.7 PIREco 2015

☐ 2/1852

**Bettinelli, Eugenio** . La voce del maestro : Achille Castiglioni : i modi della didattica / di Eugenio Bettinelli. - Mantova : Corraini, 2014. - 263 p. : ill. ; 24 cm.

Ateneo. Scienza e Tecnica: Tamburo 720.7 BETvoc 2014

☐ 3/1852

**Carino, Claudio - Rinallo, Letizia M. A.** . Analisi di una trave lignea inflessa rinforzata mediante tessuti in FRP / Claudio Carino, Letizia M. A. Rinallo. - Pavia : Dipartimento di ingegneria civile e architettura dell'Università di Pavia, anno accademico 2013/14. - [11] carte : ill. ; 30 cm . - (Rapporti scientifici)

Ateneo. Scienza e Tecnica: Tamburo 624.184 CARana 2014



# QR codes on shelves

**Provide KOS context ! [Fabbrizzi]**



# Problem: too many results

“Murphy's Law of IR”\*:  
as recall increases,  
precision decreases

\* With apologies to Edward A. Murphy, Jr.  
and to James W. Perry et al.

Search terms used: (BC=PAV0U6 OR BC  
OR CD=720\$ OR LO=720\$ OR LO=690\$  
Autore, Titolo

Filter and sort |

Select one or more documents Enter C

☐ 1/1852  
**Pireddu, Giancarlo** . Economia dell'  
Ignazio Musu. - 2. ed. - Pavia : C.L.U.  
Ateneo. Economia: 720 00481  
Ateneo. Scienza e Tecnica: Tamburo 333.7 P

☐ 2/1852  
**Bettinelli, Eugenio** . La voce del ma  
Bettinelli. - Mantova : Corraini, 2014.  
Ateneo. Scienza e Tecnica: Tamburo 720.7 B

# Strategies to limit overload

- Make expanded search **optional** only
- **Sort** results  
e.g. by decreasing publication date
- Allow for query **refinement**
- Carefully **select** cross-discipline relationships:
  - not always reciprocal
  - only one step at a time [Tudhope et al. 2001]

720 ← 690, ~~624~~

690 ← 624


# Tuning SciGator

Advantage:

we can add / edit classes, captions, and relationships according to practical experience with our collection

Only classmarks with  
 $\geq 5$  **owned** books are shown  
(Non official DDC captions)

Feedback between  
reference service  
and catalogue



## SciGator

Explore University of Pavia scientific  
[it]

Choose the subject matter to be searched in our libraries:

000	↓ <b>reference, information</b>
009	↓ information and computer science
100	↓ <b>philosophy, psychology</b>
159	↓ psychology
179	↓ ethics
300	↓ <b>social sciences</b>
309	↓ sociology
329	↓ political sciences, demography, anthropology
339	↓ economics



# Discussion

- **Classification** helps integrating scattered resources and provides a **guide** to collection exploration
  - Approximate **mapping** better than no mapping
  - Everyday work to **refine** mapping and consistency of data
  - Better **integration** with OPAC would improve relevance-based ranking [2 reviewers] – but not everybody invest in KOSs...
  - Users are reluctant to learn sophisticated search  
==> service **promotion** needed, e.g. courses, posters, web portal  
("wow, you've presented this at an international conference?!")
- 
-

# thank you

physics

engineering

systems science

building

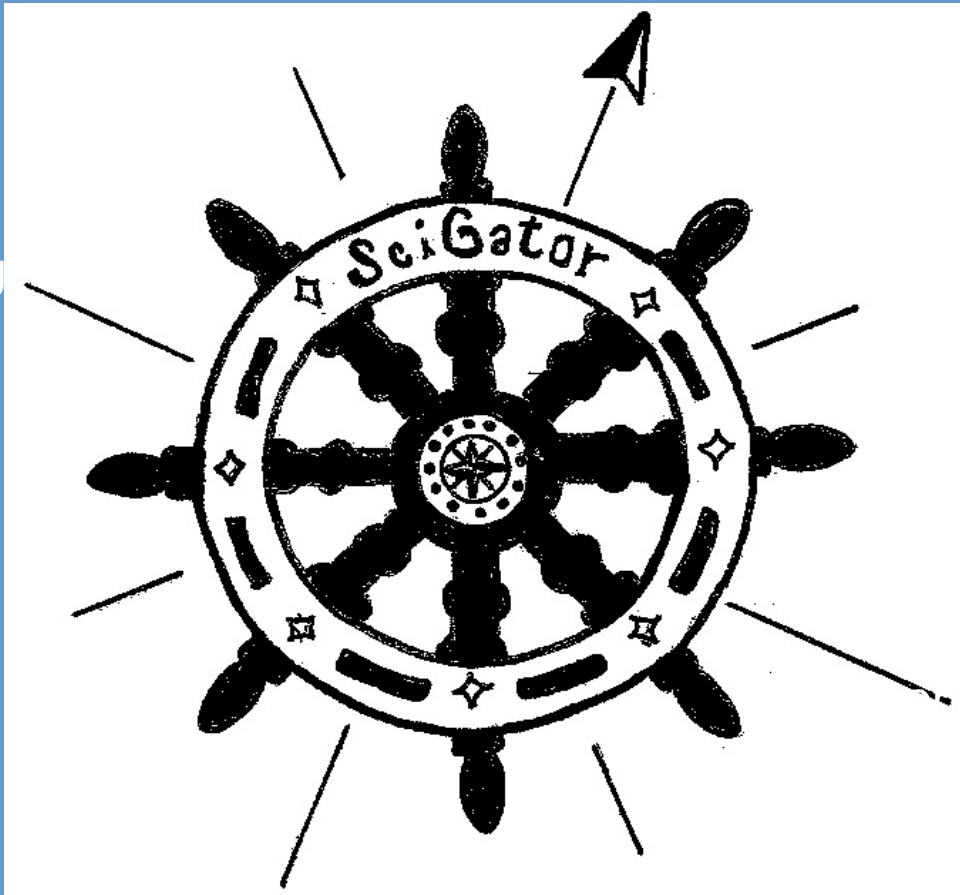
botany

mathematics

pharmacology

computer science

biomedical instruments



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[@scritur](mailto:@scritur)