

Prototype implementation of the COAR Resource Type vocabulary in DSpace

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Universidade do Minho



CONTEXT

- Two critical issues:
 - 1) Adoption in Metadata Guidelines
 - 2) Adoption by Repositories Software Platforms!

We need prototype implementations... plugins, patch's... to boost the implementation of the COAR vocabularies!

- E.g.: EPrints plugin: mapping EPrints types to COAR Resource Types: <http://bazaar.eprints.org/422/> and tested eg. In E-LIS repository.
- Dspace Prototype implementation provided by University of Minho



DSpace Workflow Approach for COAR Resource Types



D SPACE



Based on DSpace software analysis, there are two main possibilities to implement the COAR controlled vocabularies:



Option 1 - Dropdown (list)

This option includes a dropdown list of the fields to allow the submitter to select one option.

The screenshot shows a metadata form with a dropdown menu for the 'Type' field. The dropdown is open, showing a list of options including 'text', 'text::annotation', 'text::periodical', 'text::periodical::journal', 'text::periodical::journal::contribution to journal', 'text::periodical::journal::contribution to journal::journal article', 'text::periodical::journal::contribution to journal::journal article::review article', 'text::periodical::journal::contribution to journal::journal article::research article', 'text::periodical::journal::contribution to journal::editorial', 'text::periodical::journal::contribution to journal::data paper', 'text::periodical::journal::contribution to journal::letter to the editor', 'text::bibliography', 'text::book', 'text::book::book part', and 'text::review'. The 'text' option is currently selected. Other fields like 'Identifiers' (ISSN) and 'Language' are also visible.

Option 2 - Controlled Vocabularies functionality

This option uses the internal functionality of DSpace of controlled vocabularies to present the COAR types

The screenshot shows a metadata form with a 'Subject Categories' dialog box open. The dialog box has a search filter and a list of categories under the heading 'Subject Categories'. The categories listed are: text, image, software, cartographic material, interactive resource, website, sound, musical composition, workflow, other, and dataset. The 'text' category is selected. The background form shows fields for 'Citation', 'Series/Report No.', 'Identifiers' (ISSN), 'Type' (Type::text), and 'Language' (N/A).

DSPACE INPUT FORMS

Controlled vocabulary

Vocabulary = coar_types

```
<field>  
  <dc-schema>dc</dc-schema>  
  <dc-element>type</dc-element>  
  <dc-qualifier></dc-qualifier>  
  <repeatable>>false</repeatable>  
  <label>Type</label>  
  <input-type>onebox</input-type>  
  <hint>Select the type(s) of content of the item. </hint>  
  <required></required>  
  <vocabulary closed="true"> coar-types</  
  vocabulary>  
</field>
```

Dropdown (list)

```
<value-pairs value-pairs-name="coar_types" dc-term="type">
```

```
<field>  
  <dc-schema>dc</dc-schema>  
  <dc-element>type</dc-element>  
  <dc-qualifier></dc-qualifier>  
  <repeatable>>false</repeatable>  
  <label>Tipo</label>  
  <input-type value-pairs-  
  name="common_types">dropdown</input-  
  type>  
  <hint>xyz.</hint>  
  <required></required>  
</field>
```



Controlled Vocabulary



Indique se a versão que está a depositar foi revista por pares especialistas (refereeing).

Revisão por Pares (peer-review)

Sim

Não

Selecione o tipo do conteúdo que está a depositar. Para seleccionar mais do que um valor da lista,

Tipo

Selecione o tipo do conteúdo que está a depositar. Para seleccionar mais do que um valor da lista,

Tipo

[Assuntos](#)

Selecione o idioma do conteúdo principal do trabalho. Se a língua Não aparecer na lista em baixo (sem imagem) seleccione "N/A".

Idioma

Título da Revista, Periódico, Monografia ou Evento

Local de Edição ou do Evento

Assuntos - Google Chrome

192.168.136.130/controlledvocabulary/controlledvocabulary.jsp?id=dc_type_coar&vo

Pesquisar assunto em vocabulário controlado:

Filtro:

[\(Ajuda em categorias por assunto...\)](#)

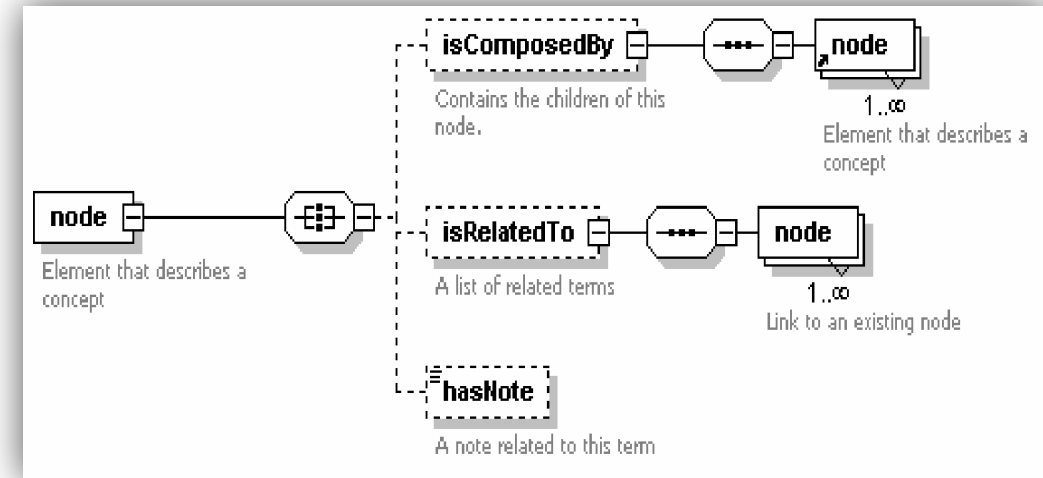
Assuntos

- Coar-Controlled-Vocabularies
 - text
 - image
 - software
 - cartographic material
 - interactive resource
 - sound
 - workflow
 - other
 - dataset



DSpace supports controlled vocabularies - search and submission process.

- Supported controlled vocabularies are expressed in a simple XML format (“DSpace node schema”).
- All information about a term is enclosed in a <node> element.
- Only the expression of a hierarchical relationship is allowed through the use of the <isComposedBy> subelement.
- By using <hasNote> a simple annotation mechanism becomes possible.



Dropdown (list)



Selecione o tipo do conteúdo que está a depositar. Para seleccionar mais do que um valor da lista, pressione a tecla "CTRL" ou "Shift".

Tipo

Selecione o tipo do conteúdo

Tipo

Selecione o idioma do conteúdo (selecione "N/A" se a imagem) selecione "N/A".

Idioma

Título da Revista, Periódico, Monografia ou Evento

Local de Edição ou do Evento

Selecione o tipo do conteúdo que está a depositar. Para seleccionar mais do que um valor da lista, pressione a tecla "CTRL" ou "Shift".

- text
- text::annotation
- text::periodical
- text::periodical::journal
- text::periodical::journal::contribution to journal
- text::periodical::journal::contribution to journal::journal article
- text::periodical::journal::contribution to journal::editorial
- text::periodical::journal::contribution to journal::data paper
- text::periodical::journal::contribution to journal::letter to the editor
- text::bibliography
- text::book
- text::book::book part
- text::review
- text::review::book review
- text::conference object
- text::conference object::conference proceedings
- text::conference object::conference proceedings::conference paper
- text::conference object::conference proceedings::conference poster
- text::conference object::conference paper not in proceedings
- text::conference object::conference poster not in proceedings

Cancelar/Guardar Próximo >

Promotores do RCAAP Financiadores do RCAAP



Can be implemented in DSpace by declaring one separate `<form-definition>` for each community inside the `input-forms.xml` file.

- `form-map`
 - `<name-map collection-handle="1111/33333" form-name="book" />`
 - Solution to adapt and simplify the input forms per type

Item View

- Provide a way to show (user friendly) type name instead of URL
E.g.
Show: software
Instead of: `http://purl.org/coar/resource_type/c_5ce6`



Table: describes the needed changes for each implementation in Dspace

Dspace	Option 1 - Dropdown	Option 2 - Controlled Vocabularies
Submission process	Change value pairs on the input-forms.xml	Use Controlled Vocabularies functionality
Recorded info	saves the codes (e.g.: c_ecc8)	saves the text string (e.g.: text::book)
Item type Display	shows the coded type	shows text string
OAI-PMH	Doesn't require conversion Recommend to modify COAR code to Driver types label if needed	Use XOAI to map information (text strings to code)
API	Rest Output - Nothing to do, the COAR code is exposed	Rest Output - Develop a mapping Requires development in dspace-rest
SWORD ingest (v1 or v2)	Analyse and modify existing mapping (same for option 1 or 2)	Analyse and modify existing mapping (same for option 1 or 2)

How to encode in

Provide at least two values

- the concept-URI
- a label that belongs to the concept

http://purl.org/coar/resource_type/c_6501



```
</dc:description>
<dc:date>
  2012-06-01
</dc:date>
<dc:type>
  info:eu-repo/semantics/article
</dc:type>
<dc:identifier>
  1937-3341
</dc:identifier>
<dc:identifier>
  http://hdl.handle.net/1822/19574
</dc:identifier>
<dc:language>
  eng
</dc:language>
<dc:relation>
  http://dx.doi.org/10.1089/ten.tea.2011.0632
</dc:relation>
<dc:relation>
  info:eu-repo/grantAgreement/EC/FP7/213904
</dc:relation>
<dc:rights>
  info:eu-repo/semantics/openAccess
</dc:rights>
<dc:publisher>
  Mary Ann Liebert, Inc.
</dc:publisher>
</oai_dc:dc>
```

Dspace OAI interface

- Context (set) OpenAIRE

Change info:eu-repo name space
Expose dc:type = COAR purl

http://purl.org/coar/resource_type/c_6501



```
</dc:description>
<dc:date>
  2012-06-01
</dc:date>
<dc:type>
  info:eu-repo/semantics/article
</dc:type>
<dc:identifier>
  1937-3341
</dc:identifier>
<dc:identifier>
  http://hdl.handle.net/1822/19574
</dc:identifier>
<dc:language>
  eng
</dc:language>
<dc:relation>
  http://dx.doi.org/10.1089/ten.tea.2011.0632
</dc:relation>
<dc:relation>
  info:eu-repo/grantAgreement/EC/FP7/213904
</dc:relation>
<dc:rights>
  info:eu-repo/semantics/openAccess
</dc:rights>
<dc:publisher>
  Mary Ann Liebert, Inc.
</dc:publisher>
</oai_dc:dc>
```

+ info (documentation):

- **Mapping COAR Types / Driver Types**

- <https://www.coar-repositories.org/activities/repository-interoperability/wiki/info-eu-repo/>

- **Management of Collections**

- E.g. RCAAP (to-do-list)

- **Local Types implementation Cenario**

- E.g. RepositóriUM (UMinho)

[How to implement: https://github.com/coar-repositories/vocabularies](https://github.com/coar-repositories/vocabularies) *(work in progress)*





UMinho Repository
COAR resource types - prototype
implementation
[http://](http://repositorium.sdum.uminho.pt)
repositorium.sdum.uminho.pt

1) Resource Types Internal mapping



Note:

Recently moved from Driver types to serve the UMinho evaluation system.

Mapping:

Driver types > RepositóriUM types >> COAR resources types

RepositóriUM resource types	COAR Resource Type Genres
book	http://purl.org/coar/resource_type/c_2f33
bookPart	http://purl.org/coar/resource_type/c_3248
article	http://purl.org/coar/resource_type/c_6501
conferencePaper	http://purl.org/coar/resource_type/c_5794
oralPresentation	http://purl.org/coar/resource_type/c_c94f
panelPresentation	http://purl.org/coar/resource_type/c_c94f
conferencePoster	http://purl.org/coar/resource_type/c_c94f
conferenceAbstract	http://purl.org/coar/resource_type/c_c94f
preface	http://purl.org/coar/resource_type/c_3248
postface	http://purl.org/coar/resource_type/c_3248
journalEditorial	http://purl.org/coar/resource_type/c_1843
bookEditorial	http://purl.org/coar/resource_type/c_3248
conferenceEditorial	http://purl.org/coar/resource_type/c_c94f
review	http://purl.org/coar/resource_type/c_efa0
researchReport	http://purl.org/coar/resource_type/c_93fc
legislation	http://purl.org/coar/resource_type/c_1843
annotation	http://purl.org/coar/resource_type/c_1162
dataset	http://purl.org/coar/resource_type/c_1843
bachelorThesis	http://purl.org/coar/resource_type/c_7a1f
masterThesis	http://purl.org/coar/resource_type/c_bdcc
conferenceObject	http://purl.org/coar/resource_type/c_c94f
workingPaper	http://purl.org/coar/resource_type/c_8042
other	http://purl.org/coar/resource_type/c_1843
lecture	http://purl.org/coar/resource_type/c_8544
patent	http://purl.org/coar/resource_type/c_15cd
preprint	http://purl.org/coar/resource_type/c_816b
pedagogicalPublication	http://purl.org/coar/resource_type/c_1843
report	http://purl.org/coar/resource_type/c_93fc
doctoralThesis	http://purl.org/coar/resource_type/c_db06
contributionToPeriodical	http://purl.org/coar/resource_type/c_1843

Input-forms.xml



```
<!-- ***** Common types ***** -->
<value-pairs value-pairs-name="common_types" dc-term="type">
  <pair>
    <displayed-value>Artigo em revista</displayed-value>
    <stored-value>article</stored-value>
  </pair>
  <pair>
    <displayed-value>Dissertação de Licenciatura</displayed-value>
    <stored-value>bachelorThesis</stored-value>
  </pair>
  <pair>
    <displayed-value>Dissertação de Mestrado</displayed-value>
    <stored-value>masterThesis</stored-value>
  </pair>
  <pair>
    <displayed-value>Tese de Doutorado</displayed-value>
    <stored-value>doctoralThesis</stored-value>
  </pair>
  <pair>
    <displayed-value>Livro</displayed-value>
    <stored-value>book</stored-value>
  </pair>
  <pair>
    <displayed-value>Parte ou capítulo de livro</displayed-value>
    <stored-value>bookPart</stored-value>
  </pair>
  <pair>
    <displayed-value>Recensão</displayed-value>
    <stored-value>review</stored-value>
  </pair>
  <pair>
    <displayed-value>Documento de conferência</displayed-value>
    <stored-value>conferenceObject</stored-value>
  </pair>
  <pair>
    <displayed-value>Palestra</displayed-value>
    <stored-value>lecture</stored-value>
  </pair>
  <pair>
    <displayed-value>Preprint</displayed-value>
    <stored-value>preprint</stored-value>
  </pair>
</value-pairs>
```

Ligado: rsaraiva@sdu

Introduza (caso possua) um número de edição associado ao registo.

Número da edição

No caso de artigos em revista, capítulos de livros, etc.

Primeira página

No caso de artigos em revista, capítulos de livros, etc.

Última página

Selecione o tipo de documento

Tipo

- Artigo em revista
- Editorial em revista
- Artigo em ata de conferência
- Comunicação em painel
- Comunicação oral
- Resumo
- Poster
- Editorial em ata
- Outra contribuição em conferência
- Livro
- Capítulo de livro
- Prefácio
- Posfácio
- Editorial em livro
- Recensão
- Compilações de Legislação
- Relatório Científico
- Anotação
- Dataset
- Documento de trabalho
- Palestra
- Patente
- Preprint
- Publicação pedagógica
- Relatório
- Texto de periódico
- Outro

Indique aqui o estado atual de publicação

Estado da publicação

Se aplicável, introduza aqui o número de edição do documento.
Exemplo: 10.1234/9876

DOI

Introduza o endereço eletrónico do documento.
Exemplo: The original published version

Versão da editora

Indique se a versão que está a ser submetida é a sua versão.

XOAI configuration



```
<!-- NEW COAR TYPES -->
<!-- Modifying dc.type accordingly to COAR Resource Type Genres v1.0 -->

<!-- Replacing -->
<xsl:template match="/doc/metadata/doc:element[@name='dc']/doc:element[@name='type']/doc:element/doc:field/text()">
  <xsl:choose>
    <xsl:when test="contains(., 'book')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_2f33</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'bookPart')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_3248</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'article')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_6501</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'conferencePaper')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_5794</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'oralPresentation')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_c94f</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'panelPresentation')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_c94f</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'conferencePoster')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_c94f</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'preface')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_3248</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'postface')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_3248</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'review')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_efa0</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'researchReport')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_93fc</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'legislation')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_1843</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'conferenceAbstract')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_c94f</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'annotation')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_1162</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'dataset')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_1843</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'bachelorThesis')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_7a1f</xsl:text>
    </xsl:when>
    <xsl:when test="contains(., 'masterThesis')">
      <xsl:text>http://purl.org/coar/resource\_type/c\_bdcc</xsl:text>
    </xsl:when>
  </xsl:choose>
</xsl:template>
```

OAI interface

New context for COAR resource types

COAR Context This context complies with COAR Resource Type Genres v1.0.

Identify	List Sets	List Metadata Formats	List Identifiers	List Records
----------	-----------	-----------------------	------------------	--------------

DRIVER Context This context complies with DRIVER Guidelines v2.0.

Identify	List Sets	List Metadata Formats	List Identifiers	List Records
----------	-----------	-----------------------	------------------	--------------

OpenAIRE Context This context complies with OpenAIRE Guidelines for Literature Repositories v3.0.

Identify	List Sets	List Metadata Formats	List Identifiers	List Records
----------	-----------	-----------------------	------------------	--------------

OpenAIRE Datasets Context This context complies with OpenAIRE guidelines for exposing datasets.

Identify	List Sets	List Metadata Formats	List Identifiers	List Records
----------	-----------	-----------------------	------------------	--------------

https://repositorium.sdum.uminho.pt/oai/coar?verb=ListRecords&metadataPrefix=oai_dc&set=coar

COAR resource types exposure via OAI



Metadata

```
<oai_dc:dc xmlns:oai_dc="http://www.openarchives.org/OAI/2.0/oai_dc/" xmlns:dc="http://www.lyncode.com/xoai"
xmlns:dc="http://purl.org/dc/elements/1.1/" xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/oai_dc/
http://www.openarchives.org/OAI/2.0/oai_dc.xsd">
<dc:title>An in vitro model of catheter-associated urinary tract infections to investigate the role of uncommon bacteria on the Escherichia coli microbial consortium</dc:title>
<dc:creator>Azevedo, A. S.</dc:creator>
<dc:creator>Almeida, Carina</dc:creator>
<dc:creator>Gomes, Luciana C.</dc:creator>
<dc:creator>Ferreira, Carla</dc:creator>
<dc:creator>Mergulhão, Filipe J.</dc:creator>
<dc:creator>Melo, Luís F.</dc:creator>
<dc:creator>Azevedo, Nuno F.</dc:creator>
<dc:subject>Escherichia coli</dc:subject>
<dc:subject>Delftia tsuruhatensis</dc:subject>
<dc:subject>uncommon bacteria</dc:subject>
<dc:subject>flow cell</dc:subject>
<dc:subject>urine flow</dc:subject>
<dc:subject>catheter-associated urinary tract infections</dc:subject>
<dc:description>Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.bej.2016.11.013.
<dc:description>Uncommon bacteria, such as Delftia tsuruhatensis have been isolated from CAUTIs in combination with well established pathogenic bacteria such as Escherichia coli. Nonetheless, the reason why E. coli coexists with other bacteria instead of outcompeting them in
species biofilms showed that up to 48 h the cultivable cell counts significantly increased for both species (p < 0.05). When in dual-species biofilm, E. coli outnumbered D. tsuruhatensis up to 16 h and then D. tsuruhatensis gained a fitness advantage. However, the assessment of
species biofilm by LNA/2OMe-FISH revealed that E. coli and D. tsuruhatensis coexist and tend to aggregate over time, which suggests that both bacteria are able to cooperate synergistically. Substrate uptake measurements revealed that
<dc:description>This work was financially supported by: Project POCI-01-0145-FEDER-006939 – Laboratory for Process Engineering, Environment, Biotechnology and Energy – LEPABE funded by FEDER funds through COMPETE II and
Fundação para a Ciência e a Tecnologia; Project “DNA mimics [PICO]” (PTDC/BIOT/112815/2007); PhD fellowships [SFRH/BD/82663/2011 and SFRH/BD/80400/2011].
<dc:date>2017-02-15</dc:date>
<dc:type>http://purl.org/coar/resource_type/c_6501</dc:type>
<dc:identifier>Azevedo, A. S.; Almeida, Carina; Gomes, Luciana C.; Ferreira, Carla; Mergulhão, Filipe J.; Melo, Luís F.; Azevedo, Nuno F., An in vitro model of catheter-associated urinary tract infections to investigate the role of uncommon bacteria on the Escherichia coli microbial consortium. Biochemical Engineering Journal 69, 2017</dc:identifier>
<dc:identifier>1369-703X</dc:identifier>
<dc:identifier>http://hdl.handle.net/1822/43317</dc:identifier>
<dc:identifier>1369-703X</dc:identifier>
<dc:identifier>10.1016/j.bej.2016.11.013</dc:identifier>
<dc:language>eng</dc:language>
<dc:relation>info:eu-repo/grantAgreement/FCT/5646-ICCMS/82815/PT</dc:relation>
<dc:relation>info:eu-repo/grantAgreement/FCT/SFRH/SFRH%2FBD%2F82663%2F2011/PT</dc:relation>
<dc:relation>info:eu-repo/grantAgreement/FCT/SFRH/SFRH%2FBD%2F80400%2F2011/PT</dc:relation>
<dc:relation>info:eu-repo/semantics/dataset/doi/10.1016/j.bej.2016.11.013</dc:relation>
<dc:relation>http://www.elsevier.com/locate/issn/1369703X</dc:relation>
<dc:rights>info:eu-repo/semantics/openAccess</dc:rights>
<dc:publisher>Elsevier</dc:publisher>
</oai_dc:dc>
```

`<dc:type>http://purl.org/coar/resource_type/c_6501</dc:type>`

https://repositorium.sdum.uminho.pt/oai/coar?verb=GetRecord&metadataPrefix=oai_dc&identifier=oai:repositorium.sdum.uminho.pt:1822/43317

Some gaps or needed improvements...

- Prototype implementation by default in Dspace 7 (really needed!)
 - Same option for Eprints, etc. (?)
- Availability of an API to be used by the software platforms installations, to:
 - transform concepts from SKOS into XML Schema
 - facilitate the automatic translation (language selection) of the label
 - implement vocabulary versions
- Who maintains/sustains the services... (?)



Thank You!



 pedroprincipe@sdum.uminho.pt

About COAR Controlled Vocabularies



<http://purl.org/coar/igcv>



vocabularies@coar-repositories.org

