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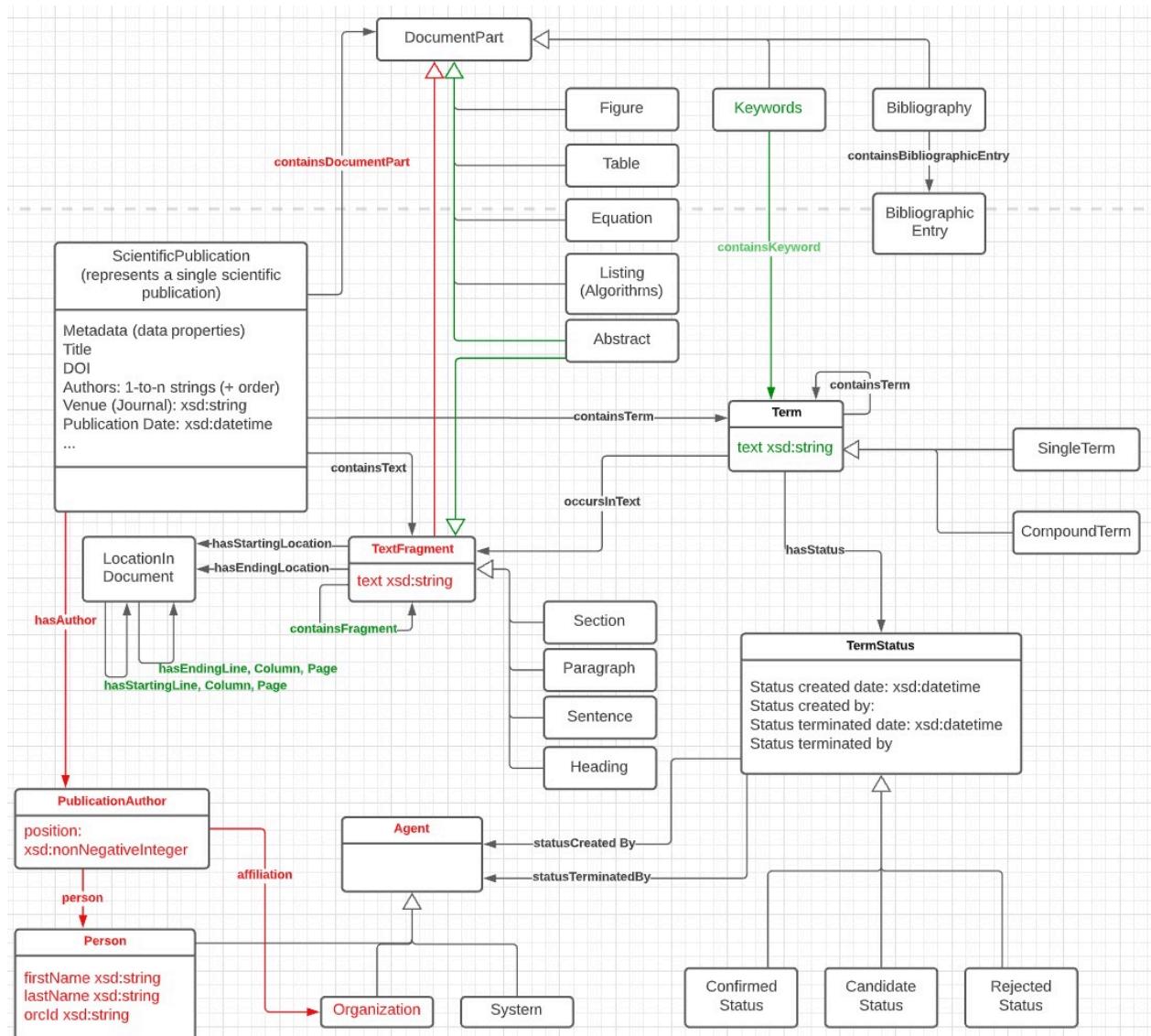
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Part A: SciPub diagram



Part B: Queries about specific terms

1. Pull all fragments which include the term “ cellulose”.

```
select ?t?p where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?f .
  ?f sp:text ?p .
  FILTER(CONTAINS(lcase(?p),"cellulose") ).
}
```

Or

```
select ?t?p where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?f .
  ?f sp:text ?p .
  FILTER(CONTAINS(?p,"cellulose") ).
}
```

t	p
1 http://cellograph.com/SciPub/2022v1.0/pubASec1	"Nanocellulose is a natural nanomaterial which can be extracted from plant cell wall."
2 http://cellograph.com/SciPub/2022v1.0/pubASec1	"With its nanometer size in diameter, nanocellulose consists of attractive properties such as high strength, excellent stiffness, and high surface area [12]"
3 http://cellograph.com/SciPub/2022v1.0/pubASec1	"Nowadays, nanocellulose gets high attraction from research and industries."
4 http://cellograph.com/SciPub/2022v1.0/pubASec1	"The study of nanocellulose is not only about its extraction from biomass, but also the new applications in various fields."
5 http://cellograph.com/SciPub/2022v1.0/pubASec3	"3. Nanocellulose"
6 http://cellograph.com/SciPub/2022v1.0/pubASec4	"4. Application of nanocellulose"
7 http://cellograph.com/SciPub/2022v1.0/pubASec5	"5. Extraction of nanocellulose from lignocellulose biomass"
8 http://cellograph.com/SciPub/2022v1.0/pubASec5	"5.2. Extraction of nanocellulose"
9 http://cellograph.com/SciPub/2022v1.0/pubASec5_2	"5.2. Extraction of nanocellulose"
10 http://cellograph.com/SciPub/2022v1.0/pubASec6	"6. Extraction of nanocellulose with the assistance of ball milling"

2. List all contains “ strength”

```
select ?p?c where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?p .
  ?p sp:text ?c .
  FILTER(CONTAINS(lcase(?c),"strength")).
```

p	c
1 http://cellograph.com/SciPub/2022v1.0/Para4Sent3	"with its nanometer size in diameter, nanocellulose consists of attractive properties such as high strength, excellent stiffness, and high surface area [12]"

3. Give me all the sentences about lignin

```
select ?f?i where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?f .
  ?f sp:secNumber ?n .
  ?f sp:text ?i .
  filter(contains(?i, "lignin")) .
```

f	i
1 http://cellograph.com/SciPub/2022v1.0/Para4Sent1	"Cell wall structure of lignocellulosic biomass mainly consists of three kinds of polymer, i.e., lignin, hemicellulose, and cellulose."
2 http://cellograph.com/SciPub/2022v1.0/Para4Sent4	"In plant cell walls, lignin serves as the binder which holds between and around cellulose and hemicellulose complexon (Fig. 1)"
3 http://cellograph.com/SciPub/2022v1.0/Para22Sent3	"Firstly, the non-cellulosic components, such as lignin, hemicellulose, and other compounds, are removed by the pretreatment."
4 http://cellograph.com/SciPub/2022v1.0/Para22Sent3	"Firstly, the non-cellulosic components, such as lignin, hemicellulose, and other compounds, are removed by the pretreatment."

4. Which section is about extraction methods?

```
select distinct ?t where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?f.
  ?f sp:text ?i .
  filter (contains(?i, "extraction method")) .
}
```

```
r 9 select distinct ?t where {
10   :pubA sp:containsText ?t .
11   ?t sp:containsFragment ?f.
12   ?f sp:text ?i .
13   filter (contains(?i, "extraction method")) .
14 }
```

Press Table Raw Response Pivot Table Google Chart

Filter query results Showing results from 1 to 2 of 2.

t
1 http://cellograph.com/SciPub/2022v1.0/pubASec5
2 http://cellograph.com/SciPub/2022v1.0/pubASec5_1

5. Give me all the confirmed single term

```
select ?i where {?s rdf:type :SingleTerm .
  ?s :hasStatus ?o .
  ?o rdf:type :ConfirmedStatus.
  ?s sp:text ?i .
}
```

```
r 9 select ?i where (?s rdf:type :SingleTerm .
10   ?s :hasStatus ?o .
11   ?o rdf:type :ConfirmedStatus.
12   ?s sp:text ?i .
13 }
```

Press Table Raw Response Pivot Table Google Chart

Filter query results Showing results from 1 to 6 of 6.

i
1 "nanocellulose"
2 "properties"
3 "modification"
4 "nanomaterial"
5 "plant"
6 "size"

6. Where the rejected you compound occurred?

```
select ?t ?i where {?s rdf:type :CompoundTerm .
  ?s :hasStatus ?o .
  ?o rdf:type :RejectedStatus.
  ?s :text ?t .
  ?s :occurredInText ?i .
```

```
1 prefix sp: <http://cellograph.com/SciPub/2022v1.0/>
2 prefix : <http://cellograph.com/SciPub/2022v1.0/>
3 prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
4 prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>
5 prefix xsd: <http://www.w3.org/2001/XMLSchema#>
6 prefix owl: <http://www.w3.org/2002/07/owl#>
7 prefix dcterms: <https://purl.org/dc/terms/>
8
9 select ?t ?i where {?s rdf:type :CompoundTerm .
10   ?s :hasStatus ?o .
11   ?o rdf:type :RejectedStatus.
12   ?s :text ?t .
13   ?s :occurredInText ?i .
14 }
```

Run Unnamed X Unnamed X Unnamed X +

Table Raw Response Pivot Table Google Chart Download as

Filter query results Showing results from 1 to 3 of 3. Query took 0.1s, minutes ago.

t	s	i	c
1 "due to"			http://cellograph.com/SciPub/2022v1.0/AbsSent1
2 "such as"			http://cellograph.com/SciPub/2022v1.0/AbsSent1
3 "such as"			http://cellograph.com/SciPub/2022v1.0/ParaSent3

Part C: Queries about location

7. List the starting location of every documentPart :

```
select * where {:pubA sp:containsDocumentPart ?t .
```

```
?t :hasStartingLocation ?p .
?p :hasStartingPage ?q .
?p :hasStartingLine ?l .
```

```
}
```

The screenshot shows the Cellograph interface with a query editor and a results table.

Query Editor:

```

1 prefix sp: <http://cellograph.com/SciPub/2022v1.0/>
2 prefix : <http://cellograph.com/SciPub/2022v1.0/>
3 prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
4 prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>
5 prefix xsd: <http://www.w3.org/2001/XMLSchema#>
6 prefix owl: <http://www.w3.org/2002/07/owl#>
7 prefix dcterms: <http://purl.org/dc/terms/>
8
9
10 select ?t?q?l where {:pubA sp:containsDocumentPart ?t .
11 ?t :hasStartingLocation ?p .
12 ?p :hasStartingPage ?q .
13 ?p :hasStartingLine ?l .
14 }
15

```

Results Table:

t	q	l
http://cellograph.com/SciPub/2022v1.0/Abstract1	*1*xsd:nonNegativeInteger	*1*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/Acknowledgements1	*10*xsd:nonNegativeInteger	*28*xsd:nonNegativeInteger

8. List the starting location of every sections :

```
select ?t?q?l where {:pubA sp:containsText ?t .
```

```
?t :hasStartingLocation ?p .
?p :hasStartingPage ?q .
?p :hasStartingLine ?l .
```

```
}
```

The screenshot shows the Cellograph interface with a query editor and a results table.

Query Editor:

```

8
9
10 select ?t?q?l where {:pubA sp:containsText ?t .
11 ?t :hasStartingLocation ?p .
12 ?p :hasStartingPage ?q .
13 ?p :hasStartingLine ?l .
14 }

```

Results Table:

t	q	l
http://cellograph.com/SciPub/2022v1.0/pubASec1	*1*xsd:nonNegativeInteger	*3*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec2	*2*xsd:nonNegativeInteger	*11*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec3	*2*xsd:nonNegativeInteger	*36*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec4	*4*xsd:nonNegativeInteger	*37*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec5	*5*xsd:nonNegativeInteger	*45*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec6	*6*xsd:nonNegativeInteger	*51*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec7	*10*xsd:nonNegativeInteger	*4*xsd:nonNegativeInteger

9. List the ending location of every sections :

```
select ?t?q?l where {:pubA sp:containsText ?t .
```

```
?t :hasEndingLocation ?p .
?p :hasEndingPage ?q .
?p :hasEndingLine ?l .
```

```
}
```

The screenshot shows the Cellograph interface with a query editor and a results table.

Query Editor:

```

6 prefix owl: <http://www.w3.org/2002/07/owl#>
7 prefix dcterms: <http://purl.org/dc/terms/>
8
9
10 select ?t?q?l where {:pubA sp:containsText ?t .
11 ?t :hasEndingLocation ?p .
12 ?p :hasEndingPage ?q .
13 ?p :hasEndingLine ?l .
14 }

```

Results Table:

t	q	l
http://cellograph.com/SciPub/2022v1.0/pubASec1	*2*xsd:nonNegativeInteger	*9*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec2	*2*xsd:nonNegativeInteger	*34*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec3	*4*xsd:nonNegativeInteger	*35*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec4	*5*xsd:nonNegativeInteger	*36*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec5	*6*xsd:nonNegativeInteger	*49*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec6	*9*xsd:nonNegativeInteger	*34*xsd:nonNegativeInteger
http://cellograph.com/SciPub/2022v1.0/pubASec7	*10*xsd:nonNegativeInteger	*26*xsd:nonNegativeInteger

10. Which page all fragments start?

```
select ?p?c where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?p .
  ?p sp:hasStartingLocation ?s .
  ?s sp:hasStartingPage ?c .
}
```

The screenshot shows the Cellograph interface with the query results for question 10. The results are displayed in a table with columns labeled 'p' and 'c'. The table contains 14 rows, each with a URL and its corresponding starting page number.

	p	c
1	http://cellograph.com/SciPub/2022v1.0/pubASec1Header	*1* "xsd:nonNegativeInteger
2	http://cellograph.com/SciPub/2022v1.0/pubASec2Header	*2* "xsd:nonNegativeInteger
3	http://cellograph.com/SciPub/2022v1.0/pubASec3Header	*2* "xsd:nonNegativeInteger
4	http://cellograph.com/SciPub/2022v1.0/pubASec4Header	*4* "xsd:nonNegativeInteger
5	http://cellograph.com/SciPub/2022v1.0/pubASec5Header	*5* "xsd:nonNegativeInteger
6	http://cellograph.com/SciPub/2022v1.0/pubASec6Header	*6* "xsd:nonNegativeInteger
7	http://cellograph.com/SciPub/2022v1.0/pubASec7Header	*10* "xsd:nonNegativeInteger
8	http://cellograph.com/SciPub/2022v1.0/Paragraph1	*1* "xsd:nonNegativeInteger
9	http://cellograph.com/SciPub/2022v1.0/Para1Sent1	*1* "xsd:nonNegativeInteger

11. List the starting lines of all sectors, paragraphs, and sentences :

```
select ?s?c where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?p .
  ?p sp:hasStartingLocation ?s .
  ?s sp:hasStartingLine ?c .
}
order by ?c
```

The screenshot shows the Cellograph interface with the results of the query for question 11. The results are displayed in a table with columns labeled 's' and 'c'. The table contains 10 rows, each with a URL and its corresponding starting line number.

	s	c
1	http://cellograph.com/SciPub/2022v1.0/ParaStartLoc	Http://cellograph.com/SciPub/2022v1.0/page1
2	http://cellograph.com/SciPub/2022v1.0/ParaStartLoc	*4* "xsd:nonNegativeInteger
3	http://cellograph.com/SciPub/2022v1.0/ParaSec1StartLoc	*4* "xsd:nonNegativeInteger
4	http://cellograph.com/SciPub/2022v1.0/ParaStartLoc	*3* "xsd:nonNegativeInteger
5	http://cellograph.com/SciPub/2022v1.0/ParaSec2StartLoc	*4* "xsd:nonNegativeInteger
6	http://cellograph.com/SciPub/2022v1.0/ParaSec2StartLoc	*4* "xsd:nonNegativeInteger
7	http://cellograph.com/SciPub/2022v1.0/ParaSec3StartLoc	*5* "xsd:nonNegativeInteger
8	http://cellograph.com/SciPub/2022v1.0/ParaSec4StartLoc	*3* "xsd:nonNegativeInteger
9	http://cellograph.com/SciPub/2022v1.0/ParaSec5StartLoc	*4* "xsd:nonNegativeInteger
10	http://cellograph.com/SciPub/2022v1.0/paraASec1StartLoc	*1* "xsd:nonNegativeInteger

Part D: Queries about documentPart and textFragment

12. List all the fragment parts contained in pubA :

```
select * where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?p .
  ?p sp:text ?c . }
```

t	p	c
1	http://cellograph.com/SciPub/2022v1/0/published..._Header	"1. Introduction"
2	http://cellograph.com/SciPub/2022v1/0/published..._Header	"2. Lignocellulose biomass"
3	http://cellograph.com/SciPub/2022v1/0/published..._Header	"3. Nanocellulose"
4	http://cellograph.com/SciPub/2022v1/0/published..._Header	"4. Application of nanocellulose"
5	http://cellograph.com/SciPub/2022v1/0/published..._Header	"5. Extraction of nanocellulose from lignocellulose biomass"
6	http://cellograph.com/SciPub/2022v1/0/published..._Header	"6. Extraction of nanocellulose"
7	http://cellograph.com/SciPub/2022v1/0/published..._Header	"7. Extraction of nanocellulose with the assistance of enzymes"
8	http://cellograph.com/SciPub/2022v1/0/published..._Header	"8. Extraction of nanocellulose"
9	http://cellograph.com/SciPub/2022v1/0/published..._Header	"9. Conclusion and future prospects"

13. List all sectors, paragraphs, and sentences

```
select * where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?p .
  ?p sp:containsFragment ?s .
  ?s sp:text ?c . }
```

order by ?t

f	p
1	1
2	1
3	1
4	1
5	1
6	2
7	2
8	2
9	2

14. Pull all fragments starting in page N and page M

```
select ?f?p where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?f .
  ?f sp:hasStartingLocation ?s .
  ?s sp:hasStartingPage ?p .
  FILTER (?p >= "1"^^xsd:nonNegativeInteger && ?p <=
  "2"^^xsd:nonNegativeInteger)
}
```

order by ?p

t	s	p
1	http://cellograph.com/SciPub/2022v1.0/Para1Sent1	1
2	http://cellograph.com/SciPub/2022v1.0/Para1Sent2	1
3	http://cellograph.com/SciPub/2022v1.0/Para1Sent3	1
4	http://cellograph.com/SciPub/2022v1.0/Paragraph1	1
5	http://cellograph.com/SciPub/2022v1.0/pubASec1Header	1
6	http://cellograph.com/SciPub/2022v1.0/Para2Sent1	2
7	http://cellograph.com/SciPub/2022v1.0/Para2Sent2	2
8	http://cellograph.com/SciPub/2022v1.0/Paragraph2	2
9	http://cellograph.com/SciPub/2022v1.0/pubASec2Header	2

15. Give me the abstract:

```
select ?t?c where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type sp:Abstract .
  ?t sp:text ?c . }
```

t	s	c
1	http://cellograph.com/SciPub/2022v1.0/Abstract	"Recently, nanocellulose and its applications gain high attention in both research and industrial areas due to its effective properties as a reinforcing agent in polymers. It has high surface area and good mechanical properties for modification and natural properties with biodegradability and biocompatibility. In this review, the background of nanocellulose originated from lignocellulosic biomass and the typical extraction methods and general applications are summarized. In which the nanocellulose extraction methods related to ball milling are mainly introduced. Also, an outlook on its future is given. It is expected to provide guidance on the effective extraction of nanocellulose from biomass and its most possible applications in the future."

16. List caption and page of figure N

```
select * where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type :Figure .
  ?t sp:text ?k .
  ?t sp:hasStartingPage ?page .
  ?t sp:figureNumber ?number .
  Filter(?number = "1"^^xsd:nonNegativeInteger) .
}
```

The screenshot shows a SPARQL query interface with the following details:

- Paste Area:**

```
prefix rdfs: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix rdf: <http://www.w3.org/2000/01/rdf-schema#>
prefix xsd: <http://www.w3.org/2001/XMLSchema#>
prefix owl: <http://www.w3.org/2002/07/owl#>
prefix dcterms: <http://purl.org/dc/terms/>

select * where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type :Figure .
  ?t sp:text ?k .
  ?t sp:hasStartingPage ?page .
  ?t sp:figureNumber ?number .
  Filter(?number = "1"^^xsd:nonNegativeInteger) .
}
```
- Run Button:** A red "Run" button is visible.
- Table View:** The results are presented in a table with columns: t, k, page, and number.
- Data:**

	t	k	page	number
1	http://celigraph.com/SciPub	"Main structure of plant cellul wall in lignocellulosic biomass which is consisted of lignin, hemicellulose, and cellulose."	"2"^^xsd:nonNegativeInteger	"1"^^xsd:nonNegativeInteger

17. Give me the caption and page of table N

```
select * where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type :Table .
  ?t sp:text ?k .
  ?t sp:hasStartingPage ?page .
  ?t sp:tableNumber ?number .
  Filter(?number = "1"^^xsd:nonNegativeInteger) .
}
```

The screenshot shows a SPARQL query interface with the following details:

- Paste Area:**

```
prefix rdfs: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix rdf: <http://www.w3.org/2000/01/rdf-schema#>
prefix xsd: <http://www.w3.org/2001/XMLSchema#>
prefix owl: <http://www.w3.org/2002/07/owl#>
prefix dcterms: <http://purl.org/dc/terms/>

select * where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type :Table .
  ?t sp:text ?k .
  ?t sp:hasStartingPage ?page .
  ?t sp:tableNumber ?number .
  Filter(?number = "1"^^xsd:nonNegativeInteger) .
}
```
- Run Button:** A red "Run" button is visible.
- Table View:** The results are presented in a table with columns: t, k, page, and number.
- Data:**

	t	k	page	number
1	http://celigraph.com/SciPub	"Progress of nanocellulose extraction by ball milling."	"8"^^xsd:nonNegativeInteger	"1"^^xsd:nonNegativeInteger

18. Give me all the keywords

```
select * where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type :Keywords .
  ?t sp:text ?k .
}
```

The screenshot shows a SPARQL query interface with the following details:

- Paste Area:**

```
select * where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type :Keywords .
  ?t sp:text ?k .
}
```
- Table View:** The results are presented in a table with columns: t and k.
- Data:**

	t	k
1	http://celigraph.com/SciPub/2022v1.0/Keyword1	"Biomass"
2	http://celigraph.com/SciPub/2022v1.0/Keyword2	"Cellulose"
3	http://celigraph.com/SciPub/2022v1.0/Keyword3	"Nanocellulose fiber"
4	http://celigraph.com/SciPub/2022v1.0/Keyword4	"Extraction"
5	http://celigraph.com/SciPub/2022v1.0/Keyword5	"Application"

19. Show me the reference N

```
select * where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type sp:BibliographicEntry .
  ?t sp:text ?k .
  Filter(contains(?k, '[3]')).
```

The screenshot shows a SPARQL query interface with the following details:

- Paste Area:**

```
select * where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type sp:BibliographicEntry .
  ?t sp:text ?k .
  Filter(contains(?k, '[3]')).
```
- Run Button:** A red "Run" button is visible.
- Table View:** The results are presented in a table with columns: t and k.
- Data:**

	t	k
1	http://celigraph.com/SciPub/2022v1.0/BibliographicEntry	"[3] H.V. Lee, S.B.A. Hamid, S.K. Zain, Conversion of lignocellulosic biomass to nanocellulose: structure and chemical properties, Sci. World J. 2014 (2014) 1–20."

Or

```
select ?ref where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type sp:BibliographicEntry.
  ?t sp:position ?N .
  ?t sp:text ?ref .
  Filter(?N='5'^^xsd:nonNegativeInteger).
}
```

The screenshot shows a SPARQL query results table. The query is:

```
v10 select ?ref where {
11   :pubA sp:containsDocumentPart ?t .
12   ?t rdf:type sp:BibliographicEntry.
13   ?t sp:position ?N .
14   ?t sp:text ?ref .
15   Filter(?N='5'^^xsd:nonNegativeInteger).
16 }
```

Run
Press Alt+Enter tc keyboard shortcuts

Table Raw Response Pivot Table Google Chart Download as

Filter query results Showing results from 1 to 1 of 1. Query took 0.1s, moments ago.

ref
"[5] V.B. Agbor, N. Cicek, R. Sparling, A. Berlin, D.B. Levin, Biomass pretreatment: fundamentals toward application, Biotechnol. Adv. 29 (2011) 675–685."

20. Give me all info about figure N

```
select * where {
  :pubA sp:containsDocumentPart ?t .
  ?t rdf:type sp:Figure .
  ?t sp:text ?caption.
  ?t sp:page ?page .
  ?t sp:figureNumber ?n
  filter(?n='9'^^xsd:nonNegativeInteger)
}
```

The screenshot shows a SPARQL query results table. The query is:

```
v10 select * where {
11   :pubA sp:containsDocumentPart ?t .
12   ?t rdf:type sp:Figure .
13   ?t sp:text ?caption.
14   ?t sp:page ?page .
15   ?t sp:figureNumber ?n
16   filter(?n='9'^^xsd:nonNegativeInteger)
17 }
```

Run
keyboard shortcut

Table Raw Response Pivot Table Google Chart Download as

Filter query results Showing results from 1 to 1 of 1. Query took 0.8s, moments ago.

t	caption	page	n
http://cellograph.com/SciP...	"SEM images of cotton-derived cellulose after ball milling in (a) dry state, (b) water, (c) toluene, and (d) 1-butanol [100]. [Reprinted by permission from Springer Nature, Copyright (2007).]"	"8"	"9"

21. Show me sector N

```
select ?f?i where {
  :pubA sp:containsText ?t .
  ?t sp:containsFragment ?f.
  ?t sp:secNumber ?n .
  ?f sp:text ?i
  filter(?n='1'^^xsd:nonNegativeInteger).
}
```

The screenshot shows a SPARQL query results table. The query is:

```
v10 select ?f?i where {
11   :pubA sp:containsText ?t .
12   ?t sp:containsFragment ?f.
13   ?t sp:secNumber ?n .
14   ?f sp:text ?i
15   filter(?n='1'^^xsd:nonNegativeInteger).
16 }
```

Run
SciPub2022spring
keyboard shortcut

Table Raw Response Pivot Table Google Chart Download as

Filter query results Showing results from 1 to 9 of 9. Query took 0.1s, moments ago.

f	i
http://cellograph.com/SciPub/2022v1.0/pub3SectionHeader	"Introduction"
http://cellograph.com/SciPub/2022v1.0/Par1Sent1	"In the 21st century, when humans become aware of environmental conserveable resources become more and more important for their daily life since the
http://cellograph.com/SciPub/2022v1.0/Par1Sent2	"Nanocellulose is a natural nanomaterial which can be extracted from plant c
http://cellograph.com/SciPub/2022v1.0/Par1Sent3	"With its nanometer size in diameter, nanocellulose consists of attractive prop
http://cellograph.com/SciPub/2022v1.0/Par2Sent1	"Nowadays, nanocellulose gets high attraction from research and industries.
http://cellograph.com/SciPub/2022v1.0/Par2Sent2	"The study of nanocellulose is not only about its extraction from biomass, bu
http://cellograph.com/SciPub/2022v1.0/Par2Sent3	"With its nanometer size in diameter, nanocellulose consists of attractive prop
http://cellograph.com/SciPub/2022v1.0/Par2Sent4	"Nanocellulose can be used in various fields in our life, such as biomedical pr

or

```
select distinct ?t where {?s rdf:type :Section .
  ?s sp:secNumber ?n .
  ?s sp:containsFragment ?i .
  ?i sp:text ?t
  filter(?n = "2"^^xsd:nonNegativeInteger) .}
```

The screenshot shows a SPARQL query results table. The query is:

```
v9 select distinct ?t where {?s rdf:type :Section .
10   ?s sp:secNumber ?n .
11   ?s sp:containsFragment ?i .
12   ?i sp:text ?t
13   filter(?n = "2"^^xsd:nonNegativeInteger) .
14 }
```

Run
keyboard short

Table Raw Response Pivot Table Google Chart Download as

Filter query results Showing results from 1 to 15 of 15. Query took 0.1s, moments ago.

t
"2. Lignocellulose biomass"
"Cell wall structure of lignocellulosic biomass mainly consists of three kinds of polymer, i.e. lignin, hemicellulose, and cellulose."
"Lignin represents about 10–25% by weight of dry lignocellulosic biomass [6–8]"
"In plant cell walls, lignin serves as the binder which holds between and around cellulose and hemicellulose complexon (Fig. 1)"

Part E: Queries about author and organization

22. List the organizations

```
select * where {?o rdf:type :Organization .
?o :text ?r
}
```

The screenshot shows the Cellograph interface with the query results table. The table has columns for o and r. The data includes:

	o	r
1	http://cellograph.com/SciPub/2022v1.0/Organization1	"Graduate School of Science and Technology, Hirosaki University, 1-Bunkyocho, Hirosaki 036-8560, Japan"
2	http://cellograph.com/SciPub/2022v1.0/Organization3	"Department of Chemical Technology, Chulalongkorn University, Bangkok 10330, Thailand"
3	http://cellograph.com/SciPub/2022v1.0/Organization4	"Department of Chemical Engineering, Taiyuan University of Technology, Taiyuan 030024, China"
4	http://cellograph.com/SciPub/2022v1.0/Organizations5	"Institute of Industrial Chemistry and Energy Technology, Shenyang University of Chemical Technology (SY UCT), Shenyang 110142, China"

23. List the authors

```
select ?n?!?t where {?o rdf:type :PublicationAuthor .
?o :affiliation ?r .
?o :person ?p .
?p :firstName ?n .
?p :lastName ?l .
?r :text ?t .
}
```

The screenshot shows the GraphDB interface with the query results table. The table has columns for n, l, t, and i. The data includes:

n	l	t	i
"Paihong"	"Paihong"	"Graduate School of Science and Technology, Hirosaki University, 1-Bunkyocho, Hirosaki 036-8560, Japan"	
"Paeat"	"Paeat"	"Department of Chemical Technology, Chulalongkorn University, Bangkok 10330, Thailand"	
"Xiaogang"	"Xiaogang"	"Department of Chemical Engineering, Taiyuan University of Technology, Taiyuan 030024, China"	
"Guoqing"	"Guoqing"	"Institute of Industrial Chemistry and Energy Technology, Shenyang University of Chemical Technology (SY UCT), Shenyang 110142, China"	
"Abul"	"Abul"	"Graduate School of Science and Technology, Hirosaki University, 1-Bunkyocho, Hirosaki 036-8560, Japan"	
"Qing"	"Qing"	"Graduate School of Science and Technology, Hirosaki University, 1-Bunkyocho, Hirosaki 036-8560, Japan"	
"Qing"	"Qing"	"Department of Renewable Energy, Institute of Regional Innovation (IRI), Hirosaki University, 2-1-3, Matsubara, Aomori 080-0815, Japan"	

24. What about the corresponding author?

```
select ?l?f?m where {?o :hasCorrespondingAuthor ?p .
?p :person ?a .
?a :firstName ?f .
?a :lastName ?l .
?a :email ?m .}
```

The screenshot shows the Cellograph interface with the query results table. The table has columns for l, f, m, and i. The data includes:

l	f	m	i
"Guan"	"Guoqing"	"guan@hirosaki-u.ac.jp"	