



# Unified access to photon and neutron data throughout Europe

## The SciCat implementation of the PaNOSC Search

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PaNOSC Data Portal and Federated Search provide a single tool to search public data stored in multiple data catalogues located at various European research facilities

### Query

We would like to retrieve all the public data available through PaNOSC that are related to the "brightness detector test" where the data has been collected with an *incident wavelength* equal to  $2.5 \pm 0.1 \text{ \AA}$  and a "x-ray probe" technique.

### PaNOSC Data Portal

<https://data.panosc.eu>

### Results returned

```
{
  "doi": "10.17199/BRIGHTNESS/NMX0025",
  "title": "Sample Data from NMX",
  "summary": "This data was collected as part of BrightnESS...",
  "releaseDate": "2018-01-01T00:00:00.000Z",
  "score": 0.8201906539819677,
  "provider": "https://search.panosc.ess.eu/api",
  "datasets": [
    {
      "pid": "20.500.12269/BRIGHTNESS/NMX0025",
      "title": "Sample Data from NMX 25",
      "size": 39540214280,
      "creationDate": "2016-12-09T19:20:50.000Z",
      "parameters": [
        {
          "name": "sample_chemical_formula",
          "value": "V",
          "unit": ""
        },
        {
          "name": "incident_wavelength",
          "value": "241",
          "unit": "pm"
        },
        ...
      ],
      ...
    },
    ...
  ],
  ...
}
```

### Submitted query

```
{
  "include": [
    {
      "relation": "datasets",
      "scope": {
        "include": [
          {
            "relation": "techniques",
            "scope": { "where": { "name": "x-ray probe" } }
          },
          {
            "relation": "parameters",
            "scope": { "where": { "and": [
              { "name": "incident_wavelength",
                "value": { "between": [ 240, 260 ] } },
              { "unit": "pm" }
            ] } }
          }
        ]
      }
    }
  ],
  "query": "brightness detector test",
  "limit": 50
}
```

### PaNOSC Federated Search API

<https://federated.panosc.ess.eu>

Score locally, merge globally

Merge results from all facilities. Sort by score | Submitted Query

European Photon and Neutron Open Data Search Portal

Type a query to search for open data from photon and neutron sources:

brightness detector test

1 Submit the query alone: *brightness detector test*

... or try one of these queries: *diffraction, lung*

50+ documents found

Type: proposal, publication

Technique: Select a technique...

Incident Wavelength: min, max, nm

Incident Photon Energy: min, max, eV

Chemical Formula

Temperature: min, max, K

Pressure: min, max, Pa

2 Review results and refine search

4 documents found

Type: proposal, publication

Technique: x-ray probe

Incident Wavelength: 240, 260, pm

Incident Photon Energy: min, max, eV

Chemical Formula

Temperature: min, max, K

Pressure: min, max, Pa

3 Apply additional filters:

- incident wavelength between 2.40Å (240pm) and 2.60Å (260pm)
- technique is x-ray probe or any of its siblings

Other facilities with other data catalogues



### PaNOSC Search API

SciCat Implementation

<https://search.panosc.ess.eu>

Merge catalogue results with scoring

Request documents according to filters on:

- technique
- parameters

Automatically convert units

### Documents Scoring

```
{
  {
    "doi": "10.17199/BRIGHTNESS/NMX0025",
    "score": 0.0786543
  },
  ...
}
```

"query": "brightness detector test",

Technique expansion

```
{ "where": { "name": "x-ray probe" } }
```

### SciCat Facilities

### SciCat Backend

<https://scicat.ess.eu/api>

### PaNOSC Scoring System

### Pan Ontologies

<https://techniques.panosc.ess.eu>

