Science & Technology Facilities Council

FREYA

Connected Open Identifiers for Discovery, Access and Use of Research Resources

Brian Matthews
Data Science and Technology Group
Scientific Computing Department
STFC

Persistent Identifiers

Long-lasting reference to a resource

- The referent of the identifiers “persists” over time
  - Does not change
  - Does not disappear
  - But could be moved
- The identifier is globally unique
  - Created under some authority
  - Metadata
- May be de-referenceable
  - Landing page
  - Possibly to the (digital) resource itself

Science & Technology Facilities Council

Why PIDs ?

- To know what you are talking about really is what you are talking about
  - Especially when they are outside your control
- Maintaining integrity as
  - Resources change, versions, rewrites
  - Resources move around

- Publishing into the scholarly record
  - Citation
  - Credit
  - Reproducibility
  - Reuse

Science & Technology Facilities Council

PID Schemes

- DOIs
  - Publications
  - Data
- ORCID

- ARK
- Handle
- PURL
- URN

- ResearcherID
- INCHI
- LSID
- ISNI
- ISBN
- …

ISIS Landing Page

File Edit View History Bookmarks Tools Help

ISIS Data Home | Science & Tec

https://data.isis.stfc.ac.uk/doi/INVESTIGATION/24066298/

Search

Science & Technology Facilities Council

ISIS Data Journal

The archive for ISIS research data

ISIS | ISIS Data

RB820232

Investigation title: Magnetic moment of EuO in spin filtering magnetic tunnel structures.

Release date: Sun Feb 26 08:05:26 GMT 2012

Creator: *Dr Adrian Ionescu*
Creator: *Dr Stuart Easton*
Creator: *Dr Crispin Barnes*

DOI: 10.5286/ISIS.E.24066298

Date of Experiment: Thu Feb 19 13:34:31 GMT 2009

Publisher: STFC ISIS Facility

Data format: RAW/Nexus
Select the data format above to find out more about it.

Data collected on the CRISP instrument at the ISIS facility

DOWNLOAD
download the dataset

Data Citation

The recommended format for citing this dataset in a research publication is as:
[author], [date], [title], [publisher], [doi]

For Example:
Dr Adrian Ionescu et al; (2009): 820232, STFC ISIS Facility, doi:10.5286/ISIS.E.24066298

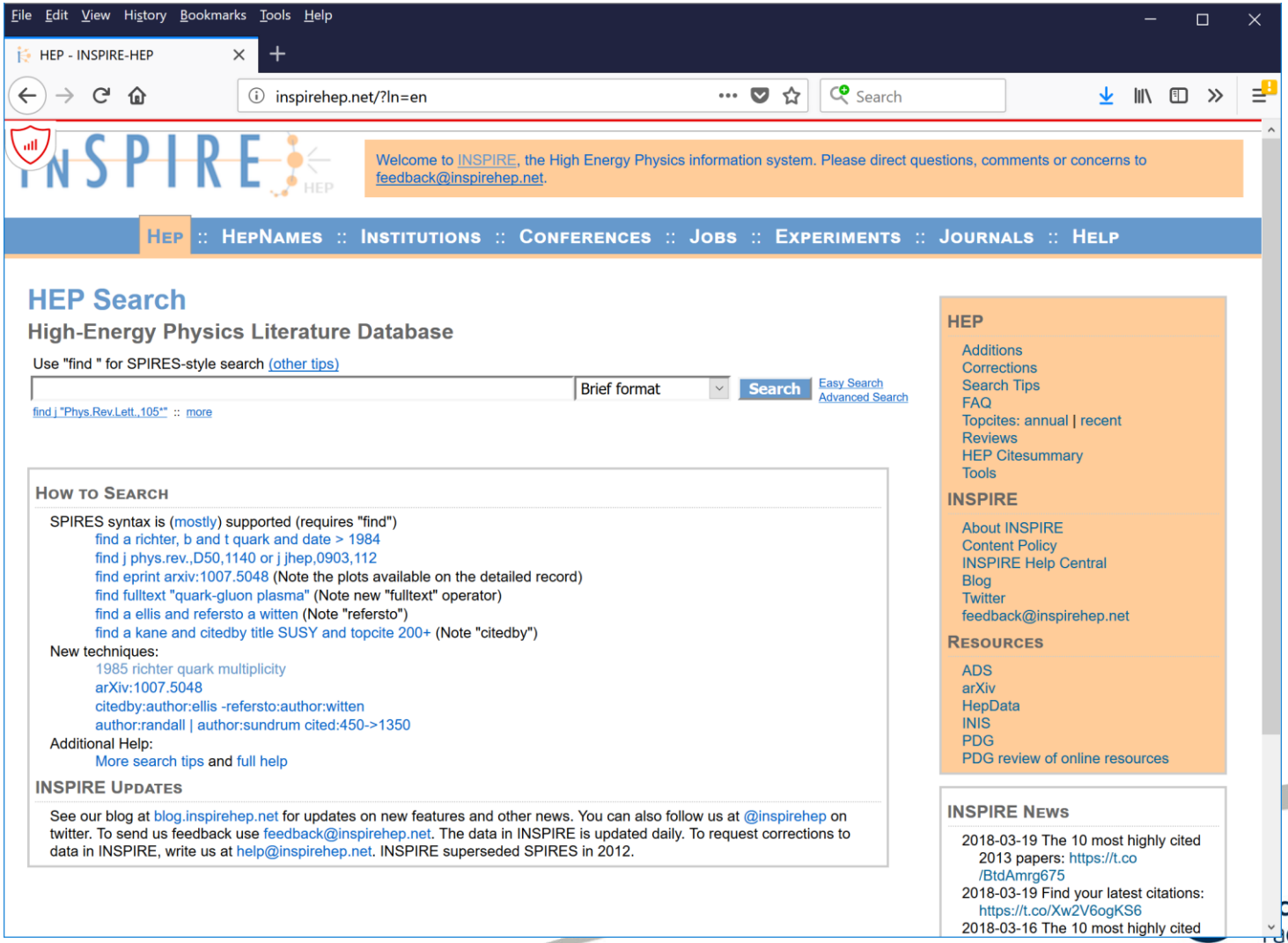
Abstract

EuO is the ferromagnetic oxide semiconductor with the highest demonstrated value of conduction band exchange splitting (0.6 eV), which makes it at present one of the most promising material for achieving high spin filtering in magnetic tunnelling junctions. We intend to study the tunnelling of single electrons in quantum dots through a spin filtering EuO barrier, as a collaboration merging the expertise in our group on ferromagnetic thin film structures with the Semiconductor Physics group expertise on quantum dots at the Cavendish Laboratory in Cambridge.In this light we strongly believe that it is now necessary to study how EuO interacts with different metallic electrodes such as NiFe, Co and Y, and with substrates commonly used in spintronic devices, Si and GaAs, and how the magnetic moment of EuO is influenced by and influences the adjacent layers.

Contact Us Cookies/Privacy Terms & conditions Cymraeg FOI Copyright Glossary Sitemap Accessibility

Science & Technology Facilities Council

http://inspirehep.net/?ln=en



The FREYA Project

- FREYA = persistent identifiers
  - "… iteratively extend a robust environment for Persistent Identifiers (PIDs) into a core component of European and global research e-infrastructures"
  - Part of the European Open Science Cloud
- Builds on THOR
  - which in turn built on ODIN
- Started 1 December 2017

Welcome to THOR

THOR is a 30 month project funded by the European Commission under the Horizon 2020 programme. It will establish seamless integration between articles, data, and researchers across the research lifecycle. This will create a wealth of open resources and foster a sustainable international e-infrastructure. The result will be reduced duplication, economies of scale, richer research services, and opportunities for

Science & Technology Facilities Council

The FREYA partners

Science & Technology Facilities Council

ORCID

BRITISH LIBRARY

Hindawi

PANGAEA

Crossref

ands
AUSTRALIAN NATIONAL DATA SERVICE

CERN

PLOS

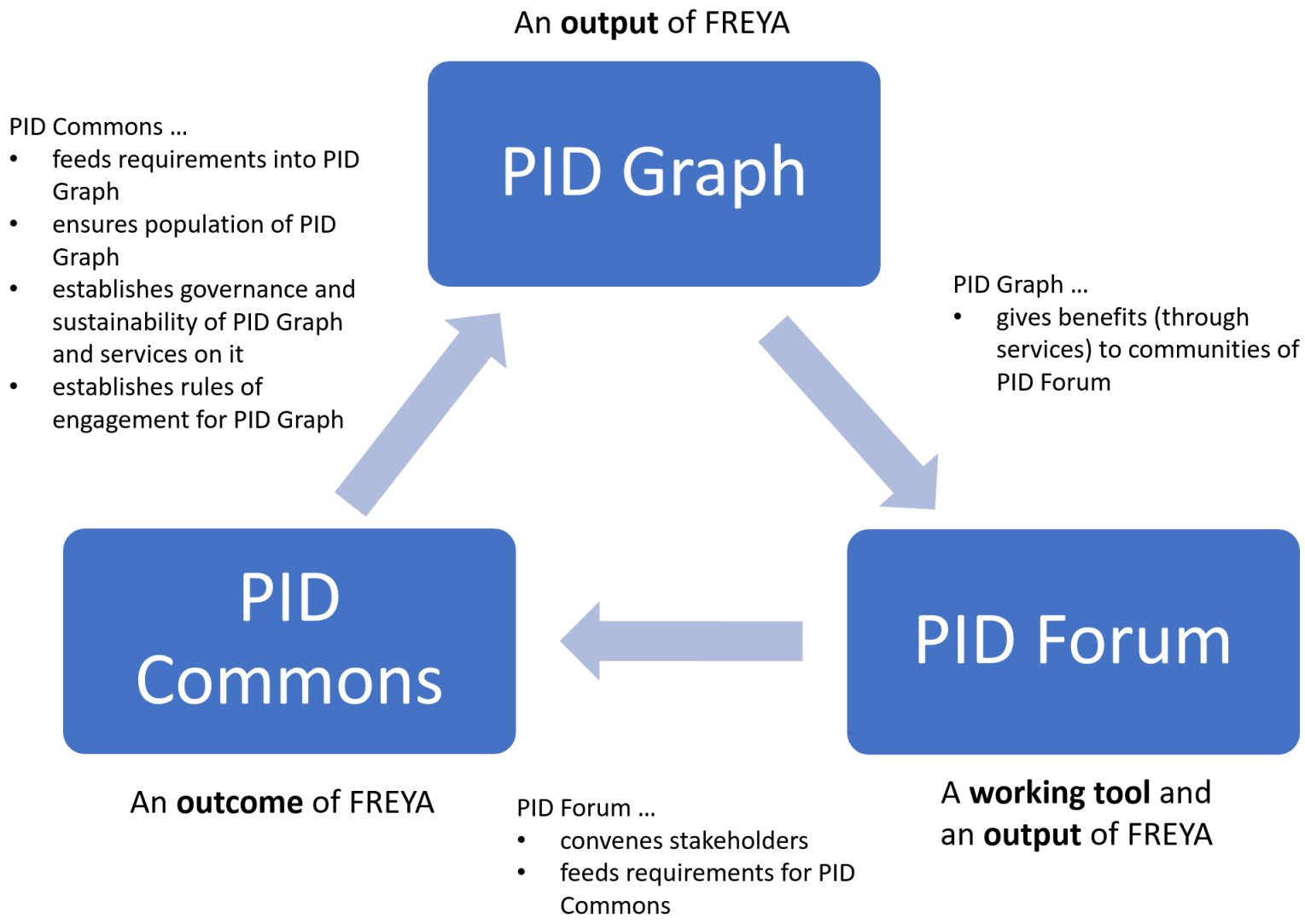
Data Archiving and Networked Services
DANS

DataCite

EMBL-EBI

Science & Technology Facilities Council

Three pillars of FREYA



Science & Technology Facilities Council

New Services for existing PIDs

Making existing PID service providers more robust and useful

- Multiple Locations
  - Describing the criteria for picking one amongst several resource locations
- Direct Access to content
  - Exploring data resources that already provide content (DataCite, GitHub issue)
  - identify life sciences databases that provide links to content
- Link Checker
  - Looking for stale content
- Core Metadata
  - Cross PID types
  - Schema.org

Science & Technology Facilities Council

New PID Types

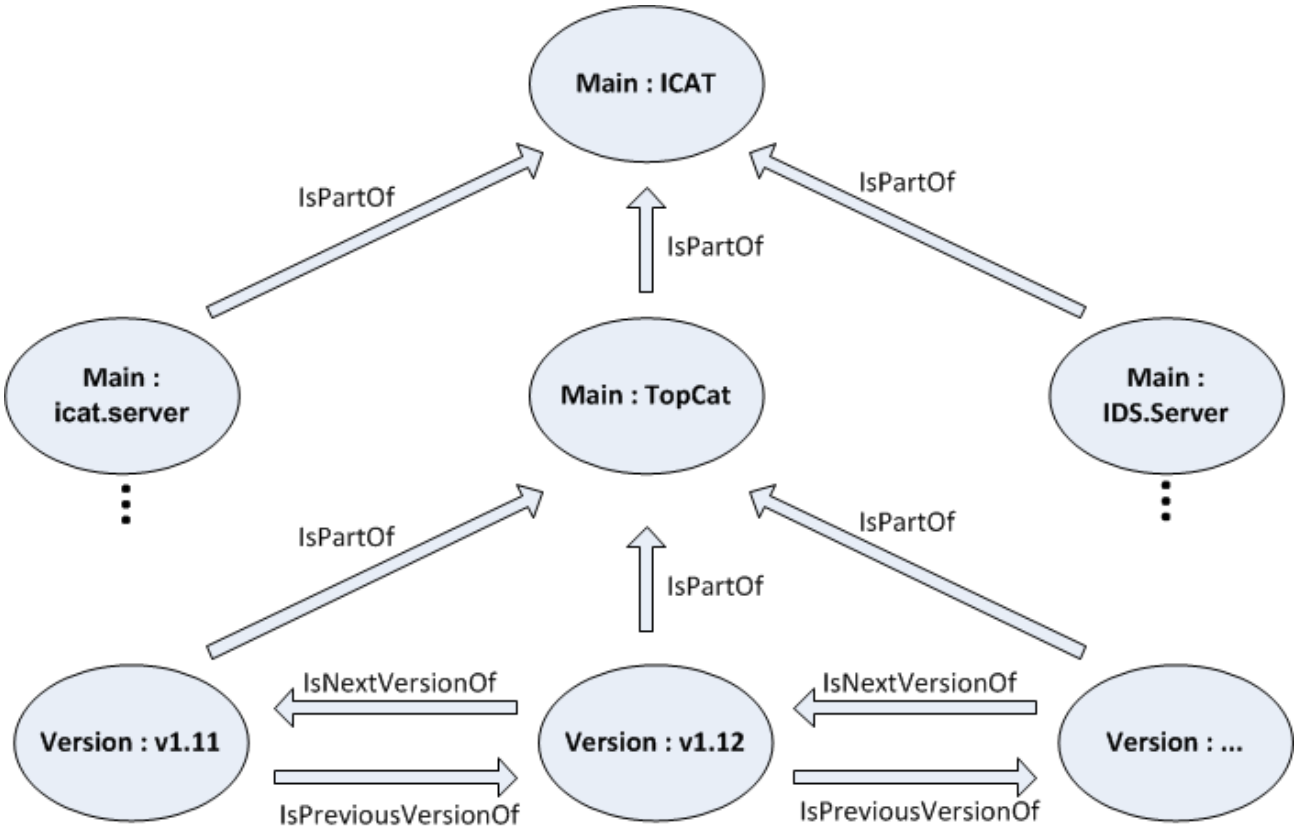
Develop services to support new PID types
e.g.

- Funder
- Organisation
- Conference
- Project
- Experiments, Clinical trials
- Places
- Facility/Instrument/Equipment
- Software
- Sample, Physical Objects
- Licences
- Events

- These are at very different levels of development
  - Currently undertaking a review
- Common Metadata ?

Science & Technology Facilities Council

Example: Software

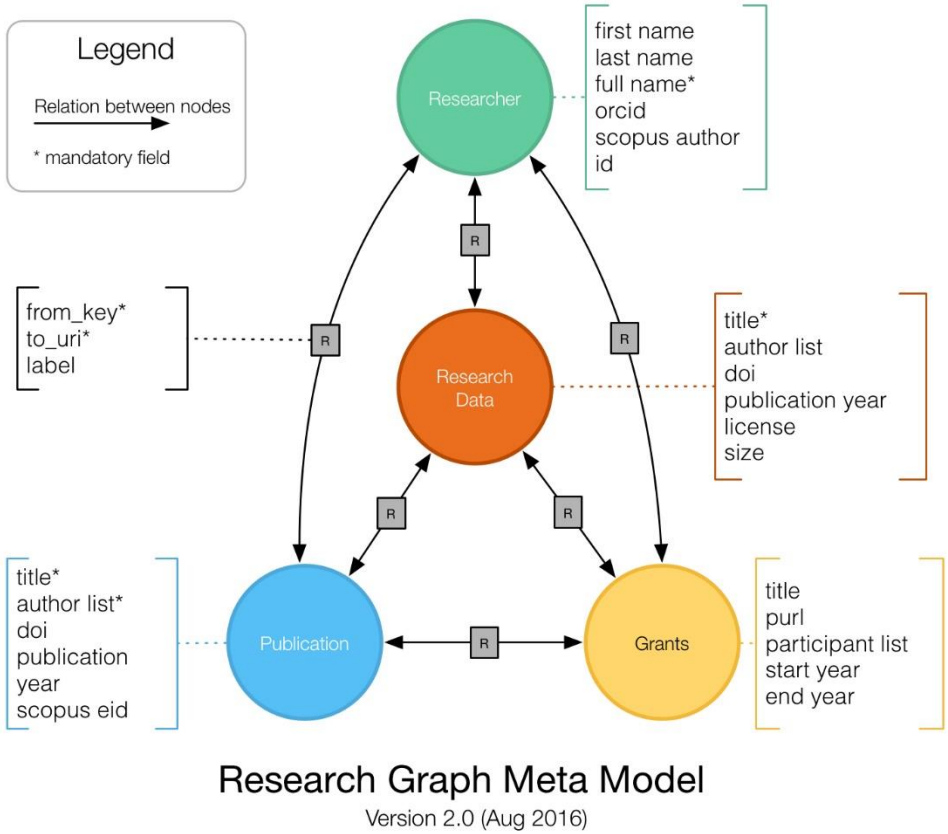


Science & Technology Facilities Council

Building the PID Graph

- Developing a schema and tools to represent and use the PID graph

- Amir Aryani (ANDS)
  - http://researchgraph.org/
- Developed by:RDA Data Description Registry Interoperability WG
  - https://rd-alliance.org/groups/data-description-registry-interoperability.html
- Should take into account other work:
  - Research Objects
  - PROV-O
  - DCAT
  - CERIF
  - …



Research Graph Meta Model

Version 2.0 (Aug 2016)

Science & Technology Facilities Council

Implications for the PID Graph

- Provenance and attribution
- Possible new entities in research discourse e.g. “analysis”
- Usage patterns: formulating and testing research questions
- Borders between in-facility data management, in-community data handling, and cross-science pieces of scholarly communicable units

The PID Graph forms a superstructure, holding the dynamic, moving parts of the EOSC in place

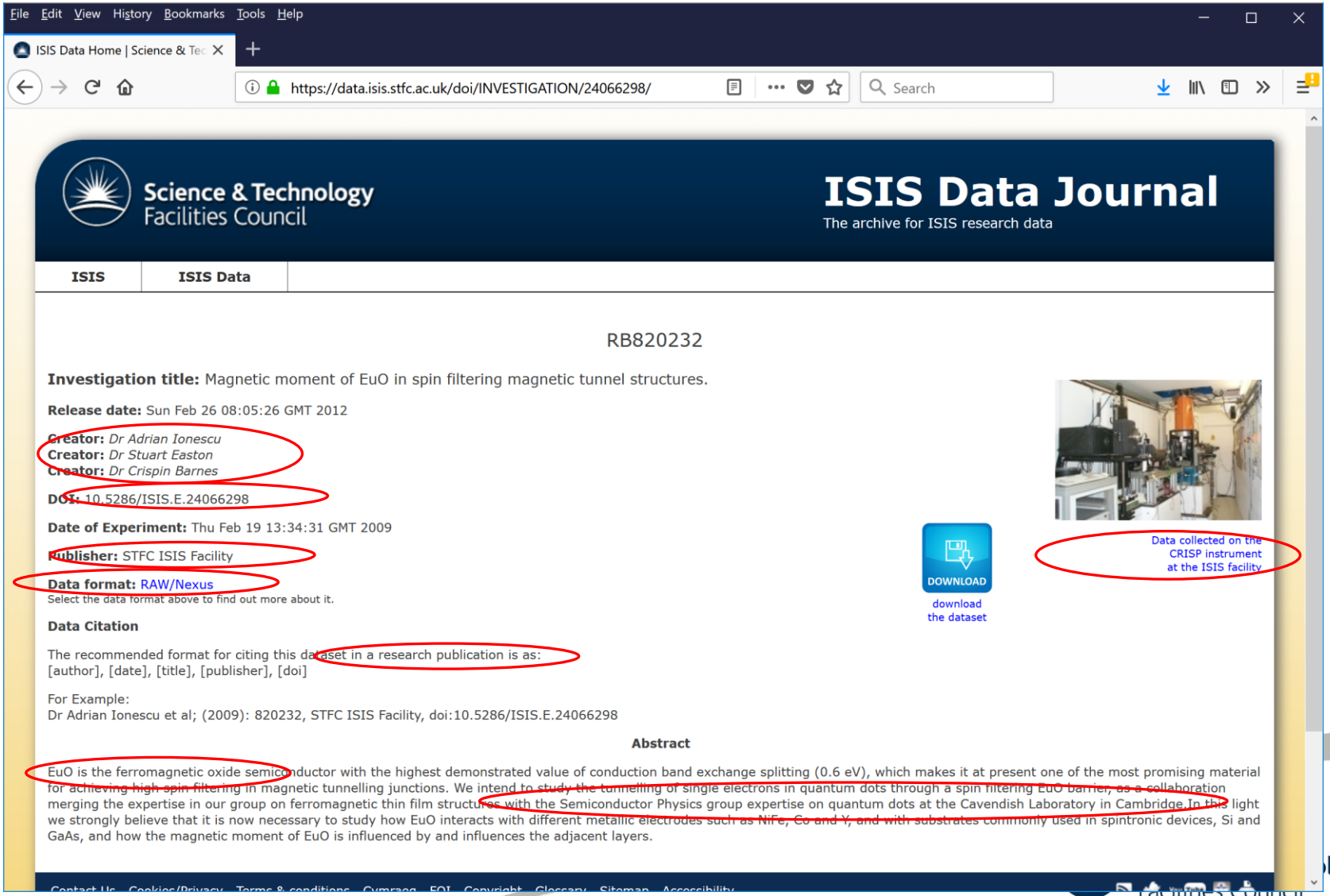
Science & Technology Facilities Council

What will FREYA be doing about it?

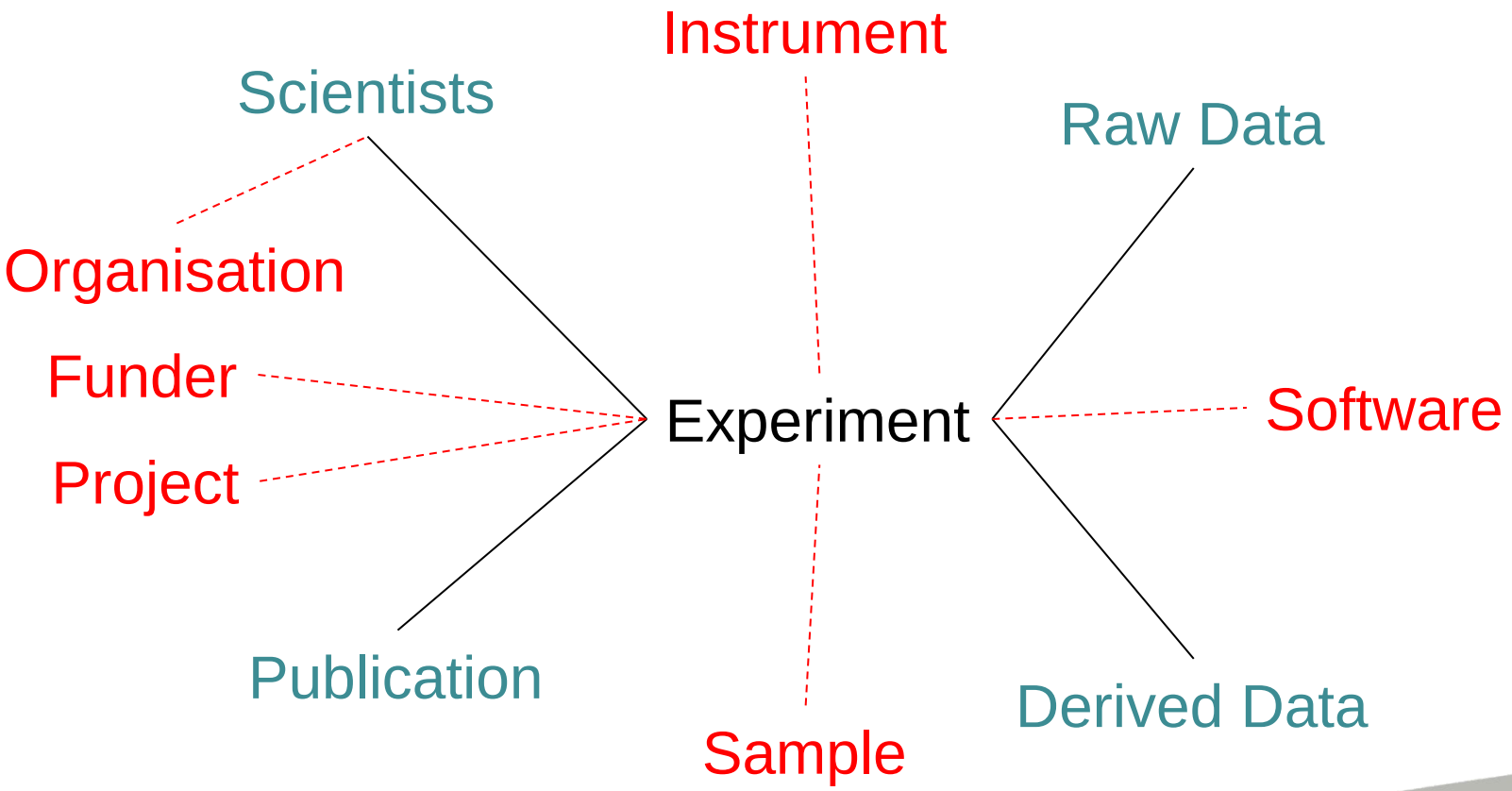
- FREYA's own disciplinary pilot applications
  - British Library, DANS: humanities and social sciences
  - CERN: high-energy physics
  - EMBL: life sciences
  - PANGAEA: earth and environmental sciences
  - STFC: facilities-based science with ISIS Neutron Source
- Each building a part of the PID Graph …

Science & Technology Facilities Council

ISIS Landing Page



Building the PID Graph



Science & Technology Facilities Council

STFC Use Case

- This is the service and user group
  - ISIS Data User and Data Management systems
  - ISIS User Office, ICAT – Data catalogue, ePubs (institutional repository) , eData (other data repository), SESC (software repository)

- This is what the service does now
  - Register user – take their ORCID Id
  - Issue a grant of instrument time – with locally unique ID
  - Record experiments and data collected on them
  - Issue DOIs for “data” (or is it experiments ?) – many years to develop a data policy which has supported this.

- This is the goal for the service during the next year (or beyond if necessary)
  - Access the Orcid system – upload grant of instrument time to the Orcid record, extract relevant publications
  - Linking to our funder information – GatewaytoResearch, ResearchFIsh – funders, organisations
  - Make the notion of adding data collection – datasets across experiments associated by the scientist.
  - Enrich the record – equipment (instrument definition file) , sample, software
  - Provenance record pulling it all together at an experiment level (but allowing people to pull together other ways).

- We need PIDs to enable...
  - Better connection between users, grants, data,
  - Finding papers which reference ISIS experiments/data/equipment
  - Links to equipment, software, samples
  - Aggregates – pulling it all together at an experiment level

Science & Technology Facilities Council

The PID Forum

- FREYA's PID Forum will be closely linked to the RDA
  - "The PID Forum is a stakeholder community, whose members collectively oversee the development and deployment of new PID types; it will be strongly linked to the Research Data Alliance (RDA)."
  - A foundation for the future **PID Commons**

Science & Technology Facilities Council

Finally, this week

- Towards the PID Forum at the Research Data Alliance

- Berlin Plenary Meeting in March:
  - BoF with EOSC-hub and OpenAIRE-Advance
  - Wednesday 20 March
- Co-located event,
  - European Open Science Cloud-related projects: liaison with RDA and new contributions
  - Friday 22 March, 2pm.

Science & Technology Facilities Council