Major services of Crossref

Sun Huh
Department of Parasitology, College of Medicine, Hallym University, Korea

It is based on data and slides provided by Rachael Lammey (Crossref)
Digital Object Identifier (DOI) and reference hyperlink

• Why is DOI necessary?
• In the web, specific site appeared, disappeared, moved, merged, separated, or modified.
• →Permanent URL address of specific content is needed.
• →International DOI Foundation (IDF) launched in 1998
New Asia Pacific members since January 2015

South Korea: 63%
Indonesia: 18%
Japan: 6%
Australia: 4%
China: 3%
Malaysia: 2%
Philippines: 1%
Singapore: 1%
Hong Kong: 1%
Taiwan: 1%
Vietnam: 1%
Thailand: 0%
Macao: 0%
How to access Vietnam scholarly journals

• Airmail for print version?
• Internet access?
• Digital object identifier (DOI)?
Publisher Members of Crossref in Vietnam

1. Vietnam National University Journal of Science
2. Publishing House for Science and Technology, Vietnam Academy of Science and Technology
3. Biomedical Research and Therapy
4. Journal of Economic Development - University of Economics Ho Chi Minh City
5. Journal of Science, Hanoi National University of Education
6. Can Tho University
Do Vietnamese members adopt DOI to their journals?

- Vietnam National University Journal of Science
- https://js.vnu.edu.vn/
Swarm Optimization Approach for Light Source Detection by Multi-robot System\textsuperscript{1}

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Abstract

Exploration and searching in unknown or hazardous environments using multi-robot systems (MRS) is among the principal topics in robotics. There have been numerous works on searching and detection of odor, fire
Review

Conductance anomalies in quantum point contacts and 1D wires

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Accepted for publication 16 January 2017
Published 5 May 2017
Comparative study of sperm motility in Metformin-using and Insulin-dependent diabetics

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Published Jun 25, 2017
DOI: https://doi.org/10.15419/bmrat.v4i6.180

Abstract
About JED

Editorial Announcement

Dear Researchers:

Greetings to all.

With effect from September 15th, 2014, the authors should submit their article to the Journal of Economic Development via the following web site:

http://acoms.jams.or.kr/journal.do?method=journalintro&journalSeq=3000001&menuId=&introMenuId=0101

This is a journal management site hosted and sponsored by the National Research Foundation of Korea (NRF).

On this site, one can submit an article by clicking on e-Submission and going through guided steps.

Before submitting an article, one needs to create an account by clicking on REGISTER and going through guiding instructions. You use this account in the subsequent submissions to the JED.
Regular Article

An Oversampling-Based Correlator-Type Receiver for DCSK Communication Systems over Generalized Flat Rayleigh Fading Channels

Nguyen Xuan Quyen
Sch. Electronics & Telecommunications, Hanoi University of Science and Technology, Hanoi, Vietnam

Correspondence: quyennguyenxuan2013@gmail.com
Communication: received 20 January 2016, revised 19 April 2016, accepted 12 May 2016
Online publication: 16 June 2016, Digital Object Identifier 10.21553/rev-jec.82
The associate editor coordinating the review of this article and recommending it for publication was Dr. Truong Trung Kien.

Abstract— This paper proposes an oversampling-based correlator-type receiver for Differential Chaos-shift Keying (DCSK)
Adoption of DOI by journals in Vietnam

- DOI: *Biomedical Research and Therapy*
- *REV Journal of Electronics and Communications*
- DOI & reference hyperlink: Only journals published by IOP or Springer
- *Advances in Natural Sciences: Nanoscience and Nanotechnology,*
- *Vietnam Journal of Mathematics,*
- *Acta Mathematica Vietnamica*
About Crossref

• Founded in 2000 with 12 publishers
• Not for profit membership organization
• 30 staff based in Oxford, UK and Boston, USA
  – outreach, tech, development, product, operations
• Publishers, libraries, sponsors, affiliated organizations, researchers, all use our services
Crossref overview

• 7200 publisher members
• Metadata store of over 88 million scholarly content items
• Persistent citation linking
• Funder identifiers
• Report and display corrections & retractions
• Check manuscripts for similarities
• Open Metadata API & Search
Content registration

- Journals
- Books
- Conference proceedings
- Standards
- Technical reports
- Working Papers
- Theses and dissertations
- Components (figures, tables)
- Datasets (supplementary data)
- Databases
- Preprints
Not just bibliographic data

• Non-descriptive information that facilitates usage:
  – ORCID iDs
  – License information
  – Clinical trial numbers
  – Archiving information
  – Full-text links (indexing and TDM)
  – Updates
Who uses Crossref?

- Funders
- Institutions
- Archives & repositories
- Research councils
- Data centres
- Professional networks
- Patent offices
- Indexing services
- Registration agencies
- Publishing vendors
- Peer review systems
- Reference manager systems
- Lab & diagnostics suppliers
- Info management systems
- Educational tools
- Data analytics systems
- Literature discovery services
- Data centres
Major services by Crossref

- DOI for scholarly contents
- Cited-by function
- Reference hypertext
- Crossmark (Check for updates)
- FundRef (Open Funder Registry)
- Text and data mining (TDM)
- CrossCheck (Similarity check)
- Meta data search
Crossmark: what is it?

• A button and a set of metadata that informs readers about
  – Publication status (current, updated, retracted)
  – Funding information
  – Authors’ ORCID(s)
  – Publication history
  – Rights or licensing information
  – And much more...
Examples
Crystal engineering and IUCrJ

Gautam R. Desiraju*

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Crystal engineering has grown over time, with its practitioners now seeking specific answers to specialized questions. How does a molecular crystal nucleate and then grow? Can its structure be predicted computationally? Can one design a crystal structure with knowledge-based inputs? Can a crystal structure be considered as a collection of modular entities which represent its microcosms? What properties are characteristic of the crystal as a whole rather than of its constituent molecules? Can these properties be designed and is property design different from structure design? Can one predict if a given compound will have polymorphs and pseudopolymorphs? Can one design the structures of multicomponent crystals in which each component is a solid when taken separately under ambient conditions? All these issues connect through the structural landscape of crystals and the exploration of this landscape, that is crystallization. The subject of crystal engineering covers not only purely organic solids but also organometallics and more
Document is current

Any future updates will be listed below

Crystal engineering and UCrJ
Crossref DOI link: https://doi.org/10.1107/s2052252515024100
Published: 2016-01-01
Update policy: https://doi.org/10.1107/cm_01

› Authors

› More Information

About CrossMark
Voice Pathology Detection Using Modulation Spectrum-Optimized Metrics

Crossref DOI link: [https://doi.org/10.3389/fbioe.2016.00001](https://doi.org/10.3389/fbioe.2016.00001)

Published:

Update policy: [https://doi.org/10.3389/crossmark-policy](https://doi.org/10.3389/crossmark-policy)

Authors
Retraction
Retraction dated 2012-11-01

Click to view Retraction: https://doi.org/10.1107/S1744309112039875

Cloning, expression, crystallization and preliminary X-ray crystallographic analysis of aspartyl aminopeptidase from the bpeB gene of Pseudomonas aeruginosa

Crossref DOI link: https://doi.org/10.1107/S1744309111054388
Published: 2012-02-01
Update policy: https://doi.org/10.1107/cm_01

Authors

More Information

About CrossMark
What constitutes a status update?

A change significant enough to affect the crediting or interpretation of the work
Status update types

addendum
clarification
correction
corrigendum
erratum
expression_of_concern
new_edition
new_version
partial_retraction
removal
retraction
withdrawal
Latest numbers

4.5 million Crossmark deposits
• 380 publishers
• 44,000 status updates
• 1,500 retractions
• 41,000 corrections
• 2.5 million DOIs with additional metadata
Additional information - funding details:

CrossMark

Any future updates will be listed below

Generation of a cold pulsed beam of Rb atoms by transfer from a 3D magneto-optic trap
Crossref DOI link: https://doi.org/10.1016/j.physleta.2016.07.022
Published: 2016-08
Update policy: https://doi.org/10.1016/elsevier_cm_policy

Authors

Funding

Funding for this research was provided by:
Council of Scientific and Industrial Research
Department of Science and Technology, Government of Kerala

License Information

Text and Data Mining valid from 2016-08-01
Native valve disease in patients with non-valvular atrial fibrillation on warfarin or rivaroxaban

Crossref DOI link: https://doi.org/10.1136/heartjnl-2015-308120
Published: 2016-07-01
Update policy: https://doi.org/10.1136/crossm

Authors

Clinical Trials
Clinical trials referenced in this document
nct00403767 at ClinicalTrials.gov

Documents that mention this clinical trial
Digoxin use in patients with atrial fibrillation and adverse cardiovascular outcomes: a retrospective analysis of the Rivaroxaban Once Daily Oral Direct Factor Xa Inhibition Compared with Vitamin K Antagonism for Prevention of Stroke and Embolism Trial in Atrial Fibrillation (ROCKET AF)
https://doi.org/10.1016/s0140-6736(14)61836-5

Efficacy and safety of rivaroxaban in patients with diabetes and nonvalvular atrial fibrillation: The Rivaroxaban Once-daily, Oral, Direct Factor Xa Inhibition Compared with Vitamin K Antagonism for Prevention of Stroke and Embolism Trial in Atrial Fibrillation (ROCKET AF Trial)
https://doi.org/10.1016/j.ahj.2015.07.006

Native valve disease in patients with non-valvular atrial fibrillation on warfarin or rivaroxaban (Post-results)
https://doi.org/10.1136/heartjnl-2015-308120

Blood pressure control and stroke or bleeding risk in
What is text and data mining?

Text Mining is an interdisciplinary field combining techniques from linguistics, computer science and statistics to build tools that can efficiently retrieve and extract information from digital text.


It uses powerful computers to find links between drugs and side effects, or genes and diseases, that are hidden within the vast scientific literature. These are discoveries that a person scouring through papers one by one may never notice.

http://www.theguardian.com/science/2012/may/23/text-mining-research-tool-forbidden
What is the issue?

• Researchers find it impractical to negotiate multiple bilateral agreements with hundreds of subscription-based publishers in order to authorize TDM of subscribed content.

• Subscription-based publishers find it impractical to negotiate multiple bilateral agreements with thousands of researchers and institutions in order to authorize TDM of subscribed content.

• All parties would benefit from support of standard APIs and data representations in order to enable TDM across both open access and subscription-based publishers.
2. The researcher takes the DOIs that correspond to the articles they are interested in

10.5555/12345678
10.5556/12345679
10.1016/12345680
10.8080/12345681
10.1155/12345682
10.1100/12345683
10.5555/12345684
10.1007/12345685
10.1111/12345686
10.2406/12345687
10.3994/12345688
10.5006/12345689
3. The researcher gives this list to the Crossref Text and Data Mining API

And that tells them

Where the full-text is located

What they are allowed to do with it
What are they allowed to do with the content?

This is communicated by licence information that publishers give to Crossref.

Some publishers ask researchers to agree to an additional licence to be able to use their content for mining.

Researchers are able to log in to Crossref TDM with their ORCID ID where they can view and accept publisher licences ALL in one place. No multiple actions are needed.

The publishers do not charge researchers for this, and Crossref does not charge researchers for the service.
How to solve it?

- Crossref REST API: designed to allow researchers to easily harvest full text documents from all participating publishers regardless of their business model (e.g. open access, subscription).
Common API Summary

- Content Negotiation (Required)
- New Metadata (Required)
  - Full text URIs
  - License URIs
- Rate Limiting Headers (optional)
How does it work?

• Step 1: A researcher identifies the articles they are interested in. The search engines they use bring back results from lots of different publishers. They can also use Crossref to search.
The searches they run bring back results showing publications from a range of publishers, in different locations and using different business models.

The challenge is to harvest all these articles in order to be able to mine them, without engaging in individual transactions with each publisher.
How to do that?

Each of those articles has a **DOI**, or digital object identifier. Each DOI is unique and identifies the paper. Researchers are familiar with DOIs and are used to working with them.

Search engines will allow them to download DOIs as a list, the researcher does not need to go to each paper to extract the DOI from it.
4. The researcher uses that information to go directly to each publisher via Crossref. It is a central channel for them visit thousands of publishers via one request or transaction. Where they will be identified in a number of ways:
✓ No identification (Open Access content)
✓ IP recognition/log in credentials
✓ IP recognition/log in credentials + Crossref token (API key) from the TDM service
Benefits

- Streamlines researcher access to distributed full text for TDM
- Enables machine-to-machine, automated access for recognized TDM (i.e. researchers won’t be locked out of publisher sites)
- Enables article-level licensing info and easy mechanism for supplemental T&Cs for text and data mining (publishers discussing model license via STM)
Funding data and the open funder registry

A standard way of reporting funding sources for published scholarly research
Who funded the research?

Acknowledgments

We thank Lucas Wetzel for constructive comments on the manuscript and Stefan Skupin for pointing out occurrences of the dynamic wavelength effect in nonlinear optics. LGM acknowledges support from ANPCyT PICT 2012 1954 and the warm hospitality of the Max Planck Institute for the Physics of Complex Systems. ACO and DS acknowledge support from the Medical Research Council UK (award MC_UP_1202/3) and the Wellcome Trust (WT098025MA).
Crossref funding data

Standardisation of funder names using the funder registry
Publisher deposit of funding metadata
Large-scale analysis and reporting to funders

funders can see the results of their grants in one place
Searchable metadata:

Search 14,200 funders connected to 1,301,803 published works with funding data

https://search.crossref.org/funding
Example, funder from Vietnam:

Selection for enhanced growth performance of Nile tilapia (Oreochromis niloticus) in brackish water (15–20 ppt) in Vietnam

*Journal Article* published May 2014 in *Aquaculture* volume 428-429 on pages 1 to 6

Research funded by Bổ Nông Nghiệp và Phát Triển Nông Thuận (1462/QD-BNN-KHCN)

Authors: Nguyen Huu Ninh, Ngo Phu Thoe, Wayne Knibb, Nguyen Hong Nguyen

[https://doi.org/10.1016/j.aquaculture.2014.02.024](https://doi.org/10.1016/j.aquaculture.2014.02.024)  

Adoption of recirculating aquaculture systems in large pangasius farms: A choice experiment

*Journal Article* published Jul 2016 in *Aquaculture* volume 460 on pages 90 to 97

Research funded by Bổ Nông Nghiệp và Phát Triển Nông Thuận | Ministry of Economic Affairs from the Netherlands

Authors: Pham Thi Anh Ngoc, Miranda P.M. Meuwissen, Tru Cong Le, Roel H. Bosma, Johan Verreth, Allons Oude Lansink

[https://doi.org/10.1016/j.aquaculture.2016.03.055](https://doi.org/10.1016/j.aquaculture.2016.03.055)  

Synthesis of Li-doped ZnO via sol–gel process: structural, optical and photocatalytic properties

*Journal Article* published 20 Oct 2016 in *Journal of Materials Science: Materials in Electronics* volume 28 issue 3 on pages 2817 to 2825

Research funded by Bổ Nông Nghiệp và Phát Triển Nông Thuận

Authors: Faten Ajala, Hinda Lachheb, Nabil Bouazizi, Ammar Houas

[https://doi.org/10.1007/s10854-016-5883-9](https://doi.org/10.1007/s10854-016-5883-9)  

Price transmission along the Vietnamese pangasius export chain

*Journal Article* published Apr 2017 in *Aquaculture*

Research funded by Bổ Nông Nghiệp và Phát Triển Nông Thuận | Ministry of Economic Affairs from the Netherlands (15/0019)

Authors: Thi Anh Ngoc Pham, Miranda P.M. Meuwissen, Tru Cong Le, Roel H. Bosma, Johan Verreth, Allons Oude Lansink

A highly tunable dopaminergic oscillator

Journal Article published 29 Dec 2014 in eLife

Research funded by Graham Boeckh Foundation (Grant #12959)

Authors: Roberto De Michele, Cindy Ast, Dominique Loque, Ulrike Kunke, Wolf B Frommer

http://dx.doi.org/10.7554/elife.00800

The transforming growth factor beta signaling axis in melanoma cells and isotype-switched antibody responses

Journal Article published 28 Nov 2014 in eLife

Research funded by Graham Boeckh Foundation (Grant #12959)

Authors: Ian D Blum, Lei Zhu, Luc Moquin, Maia V Koko

http://dx.doi.org/10.7554/elife.05105
This is your metadata

- Deposit funding data with Crossref so that funders can
- locate and record published outcomes
- Deposit good quality funding data - funder names
- without funder IDs are invisible
- Give authors clear instructions and guidance on citing funders correctly
- Full funder name not project acronym
- Include grant numbers
Summary of funding data

• Crossref’s database is the only central source of standardised funding acknowledgement metadata from publications
• Accuracy of funding metadata is critical
• An increasing number of organizations and projects rely on this funding data to identify content and check compliance with funder policies
• Get involved and make the funding data from your publications available, accurate and transparent
Similarity Check (CrossCheck)

- Continuing to grow
  - submissions
  - members
  - indexing
- New indexing method
Get involved!

- Working groups
- Crossref LIVE meetings
- Ambassadors
- Community
- Metadata 2020
Thank you!

It was presented base on the slides provided by Rachael Lammey, Crossref

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