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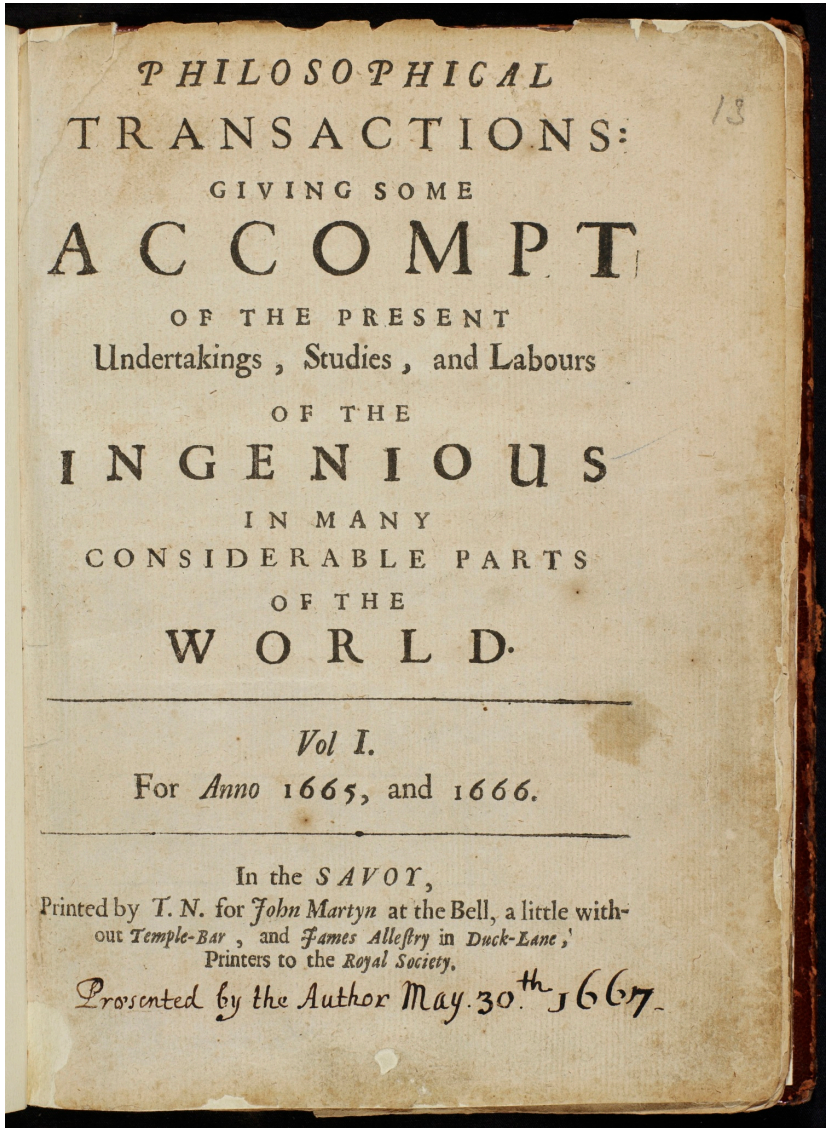

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OF THE PRESENT
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Vol I.
For Anno 1665, and 1666.

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Prosented by the Author May. 30th 1667.

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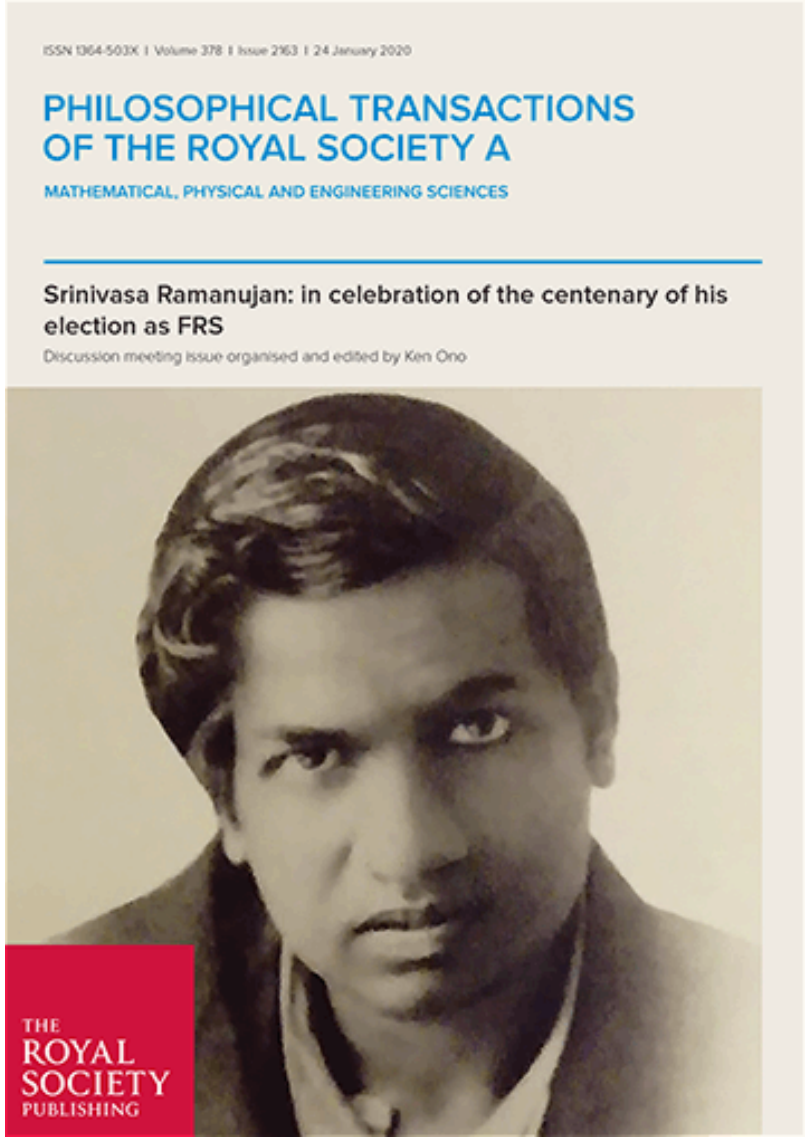
Background and History



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UK[2,3]

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2016 – 37%*

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[2]Universities UK (2017). Monitoring the transition to open access. https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Pages/monitoring-transition-open-access-2017.aspx.

[3]Tickell, A. (2018). Open access to research: independent advice – 2018, p.5. https://www.gov.uk/government/publications/open-access-to-research-independent-advice-2018

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Alfred E. Hartemink ✉

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Issue 4, 2019

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From the journal:
Sustainable Energy & Fuels

Biofuel as an alternative shipping fuel: technological, environmental and economic assessment

Uchenna Kesieme,*[ab] Kayvan Pazouki,[b] Alan Murphy[b] and Andreas Chrysanthou[a]

Author affiliations

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The Business of Scholarship

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Publishers continue to profit
Elsevier 2019 figures

- Profits grew 3% to €982 million.
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Elsevier profits up again in 2019

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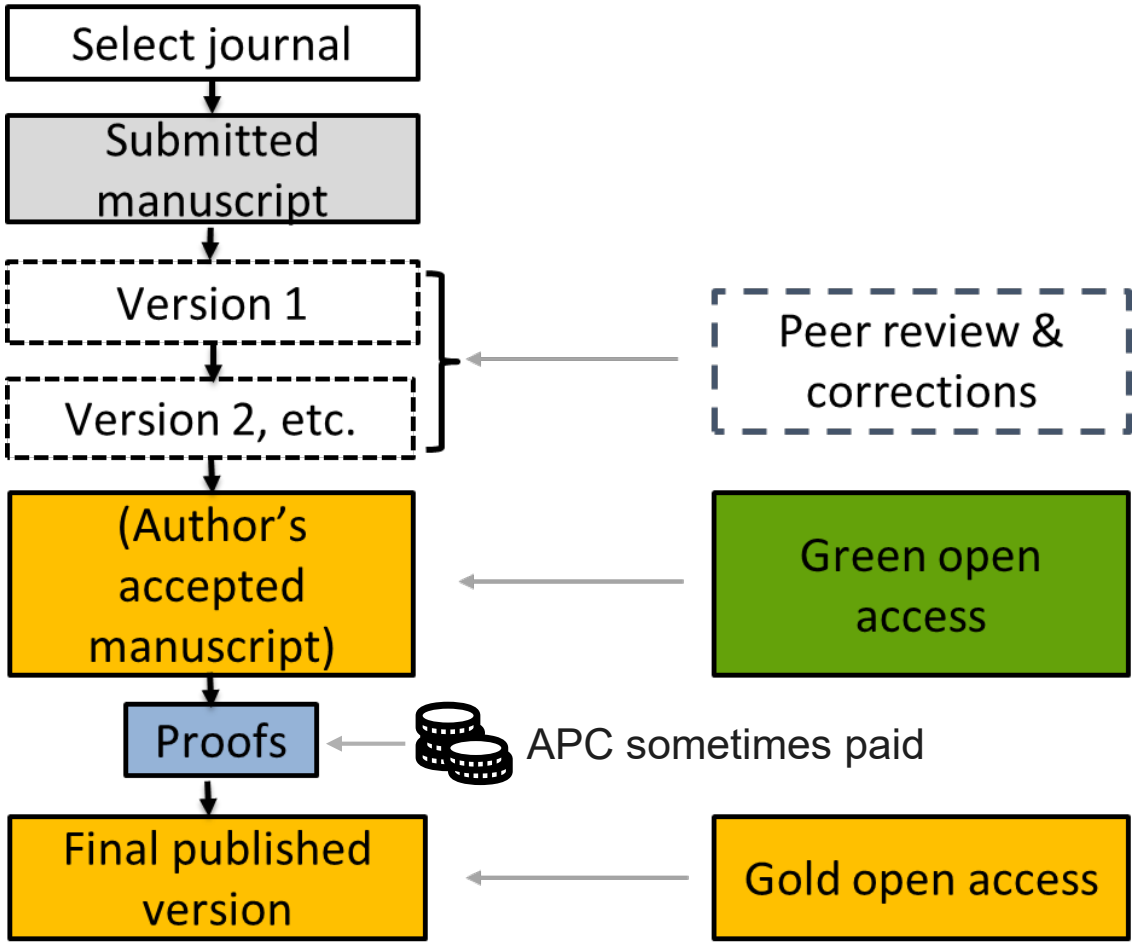

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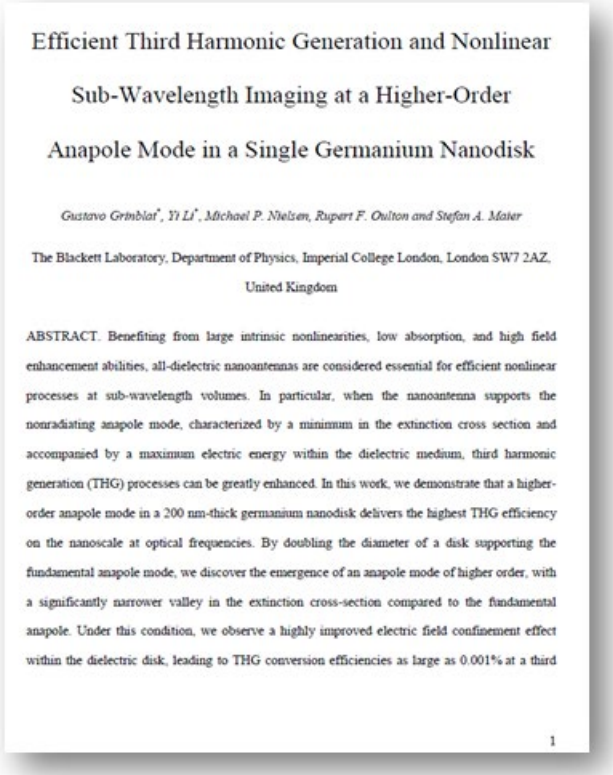


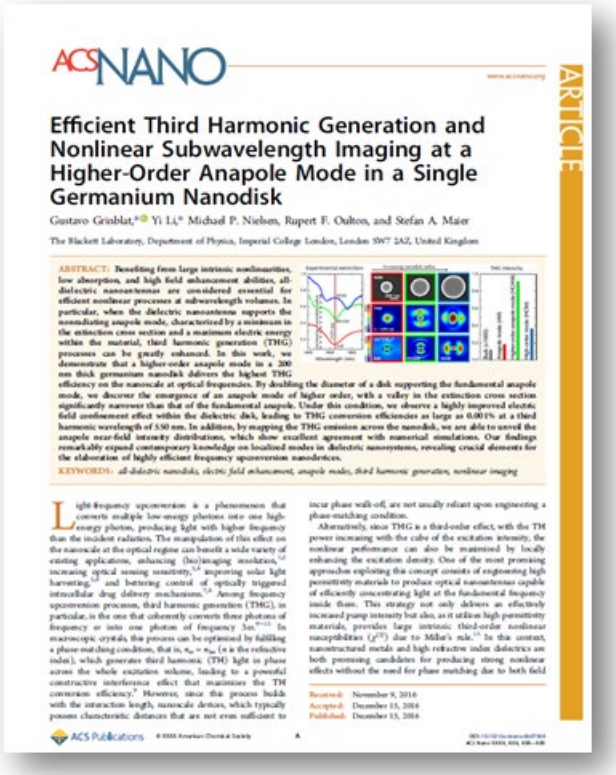
Efficient Third Harmonic Generation and Nonlinear Sub-Wavelength Imaging at a Higher-Order Anapole Mode in a Single Germanium Nanodisk

Gustavo Grinblat, Yi Li*, Michael P. Nielsen, Rupert F. Oulton and Stefan A. Maier*

The Blackett Laboratory, Department of Physics, Imperial College London, London SW7 2AZ, United Kingdom

ABSTRACT. Benefiting from large intrinsic nonlinearities, low absorption, and high field enhancement abilities, all-dielectric nanoantennas are considered essential for efficient nonlinear processes at sub-wavelength volumes. In particular, when the nanoantenna supports the nonradiating anapole mode, characterized by a minimum in the extinction cross section and accompanied by a maximum electric energy within the dielectric medium, third harmonic generation (THG) processes can be greatly enhanced. In this work, we demonstrate that a higher-order anapole mode in a 200 nm-thick germanium nanodisk delivers the highest THG efficiency on the nanoscale at optical frequencies. By doubling the diameter of a disk supporting the fundamental anapole mode, we discover the emergence of an anapole mode of higher order, with a significantly narrower valley in the extinction cross-section compared to the fundamental anapole. Under this condition, we observe a highly improved electric field confinement effect within the dielectric disk, leading to THG conversion efficiencies as large as 0.001% at a third

1



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KEYWORDS: *all-dielectric nanodisks, electric field enhancement, anapole modes, third harmonic generation, nonlinear imaging*

Light-frequency upconversion is a phenomenon that converts multiple low-energy photons into one high-energy photon, producing light with higher frequency than the incident radiation. The manipulation of this effect on the nanoscale at the optical regime can benefit a wide variety of existing applications, enhancing (bio)imaging resolution,[1,2] increasing optical sensing sensitivity,[3,4] improving solar light harvesting,[5,6] and bettering control of optically triggered intracellular drug delivery mechanisms.[7,8] Among frequency upconversion processes, third harmonic generation (THG), in particular, is the one that coherently converts three photons of frequency ω into one photon of frequency 3ω.[9−11] In macroscopic crystals, this process can be optimized by fulfilling a phase matching condition, that is, $n_{3\omega} = n_{\omega}$ (n is the refractive index), which generates third harmonic (TH) light in phase across the whole excitation volume, leading to a powerful constructive interference effect that maximizes the TH conversion efficiency.[9] However, since this process builds with the interaction length, nanoscale devices, which typically possess characteristic distances that are not even sufficient to incur phase walk-off, are not usually reliant upon engineering a phase-matching condition.

Alternatively, since THG is a third-order effect, with the TH power increasing with the cube of the excitation intensity, the nonlinear performance can also be maximized by locally enhancing the excitation density. One of the most promising approaches exploiting this concept consists of engineering high permittivity materials to produce optical nanoantennas capable of efficiently concentrating light at the fundamental frequency inside them. This strategy not only delivers an effectively increased pump intensity but also, as it utilizes high permittivity materials, provides large intrinsic third-order nonlinear susceptibilities ($\chi^{(3)}$) due to Miller's rule.[12] In this context, nanostructured metals and high refractive index dielectrics are both promising candidates for producing strong nonlinear effects without the need for phase matching due to both field

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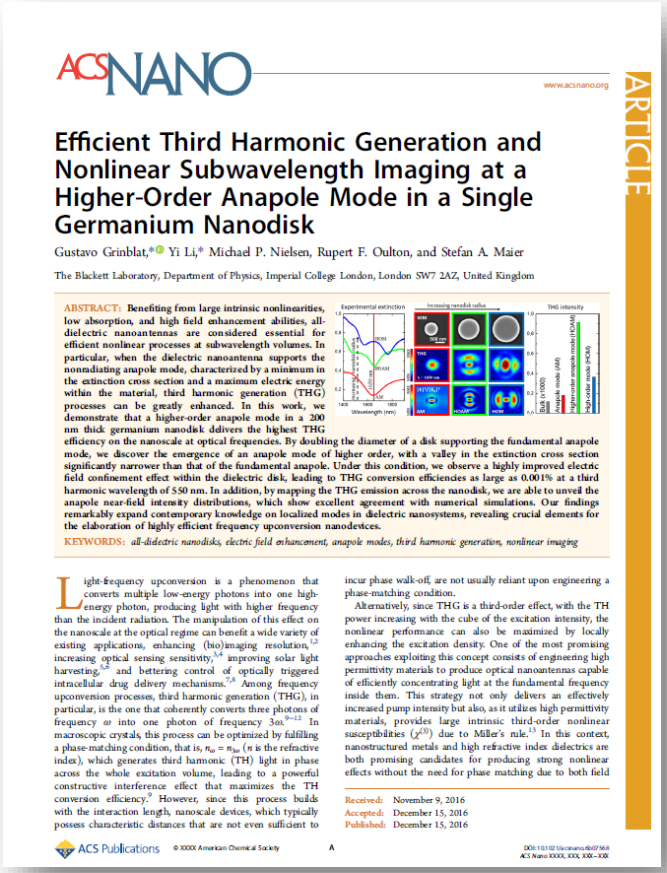

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DOI: 10.1021/acsnano.6b07968
ACS Nano XXXX, XXX, XXX−XXX

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How can it benefit you?

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Publishers' response to COVID

Publisher support for combating COVID-19

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In direct response to the health emergency, publishers provided free access to relevant peer reviewed publications to ensure that throughout the duration of the outbreak, research and data quickly reaches the widest possible audiences. On the 30th January STM reached out to members to coordinate and broaden the wider efforts to make relevant research quickly and freely available. Over the subsequent days and weeks, more than 32,000 articles, chapters and other resources have been made findable and useable in this manner.

This resource page was deployed on the 10th February, whilst throughout the month, publishers worked to continue to identify and improve the use of resources in tandem with world governments and non-governmental organisations. Agreements have been made to ensure that resources are available under terms and in formats that enable machine analysis and reuse. Crossref have also provided assistance to make it easier for researchers to identify, locate, and access content for text mining.

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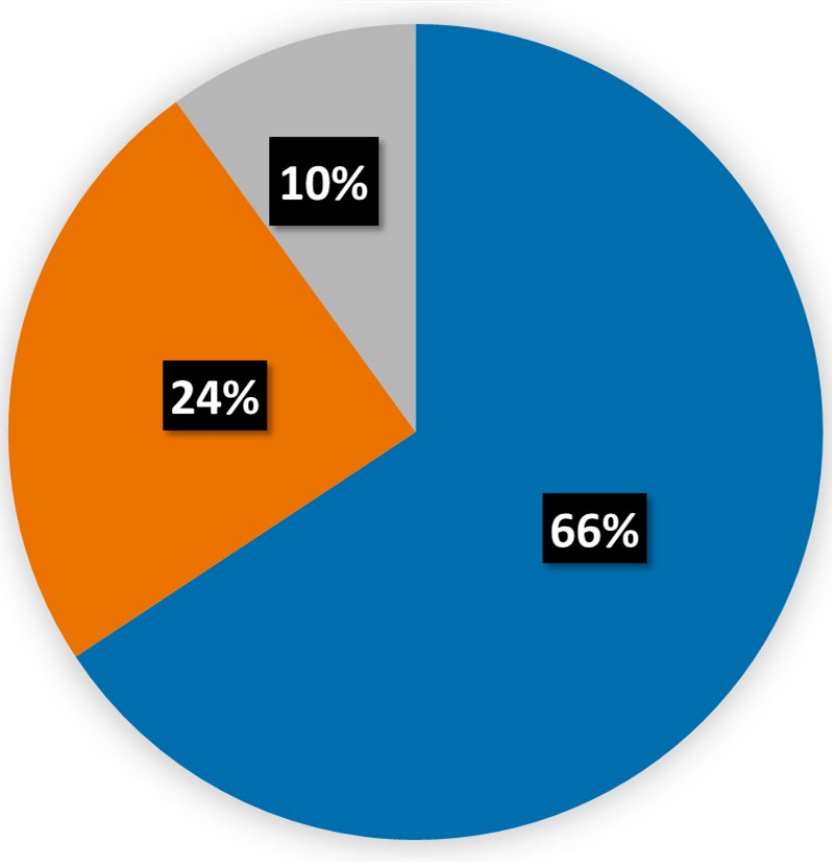
- 70 studies
- 2004-2015
- 2/3 found clear evidence of an OA citation advantage



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  Ottaviani, J. (2016). The post-embargo open access citation advantage: It exists (probably), its modest (usually), and the rich get richer (of course). PLoS ONE, 11(8) doi: https://doi.org/10.1371/journal.pone.0159614

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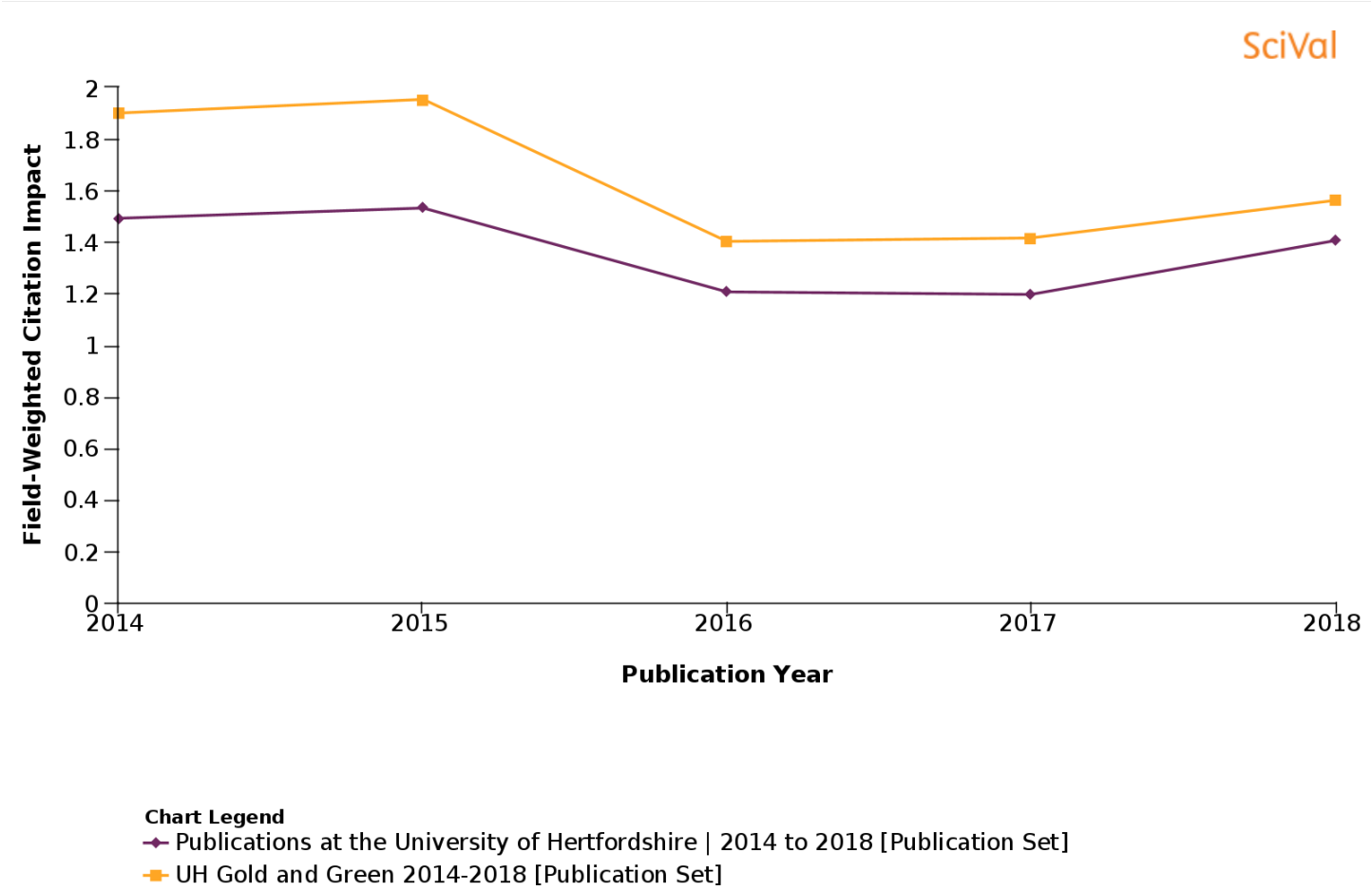
UH Publications 2014-2018



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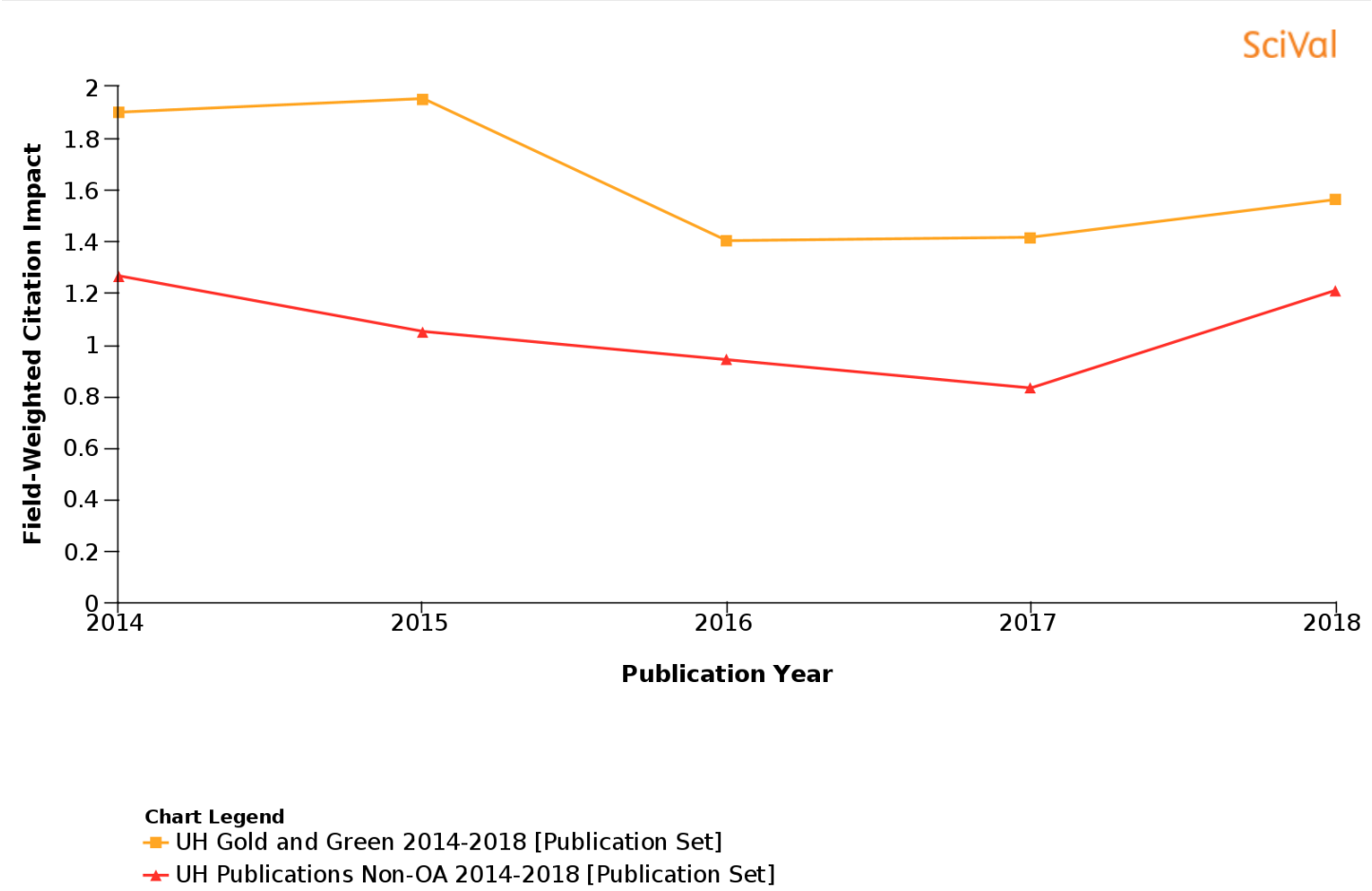
UH Publications 2014-2018 – OA vs Non-OA



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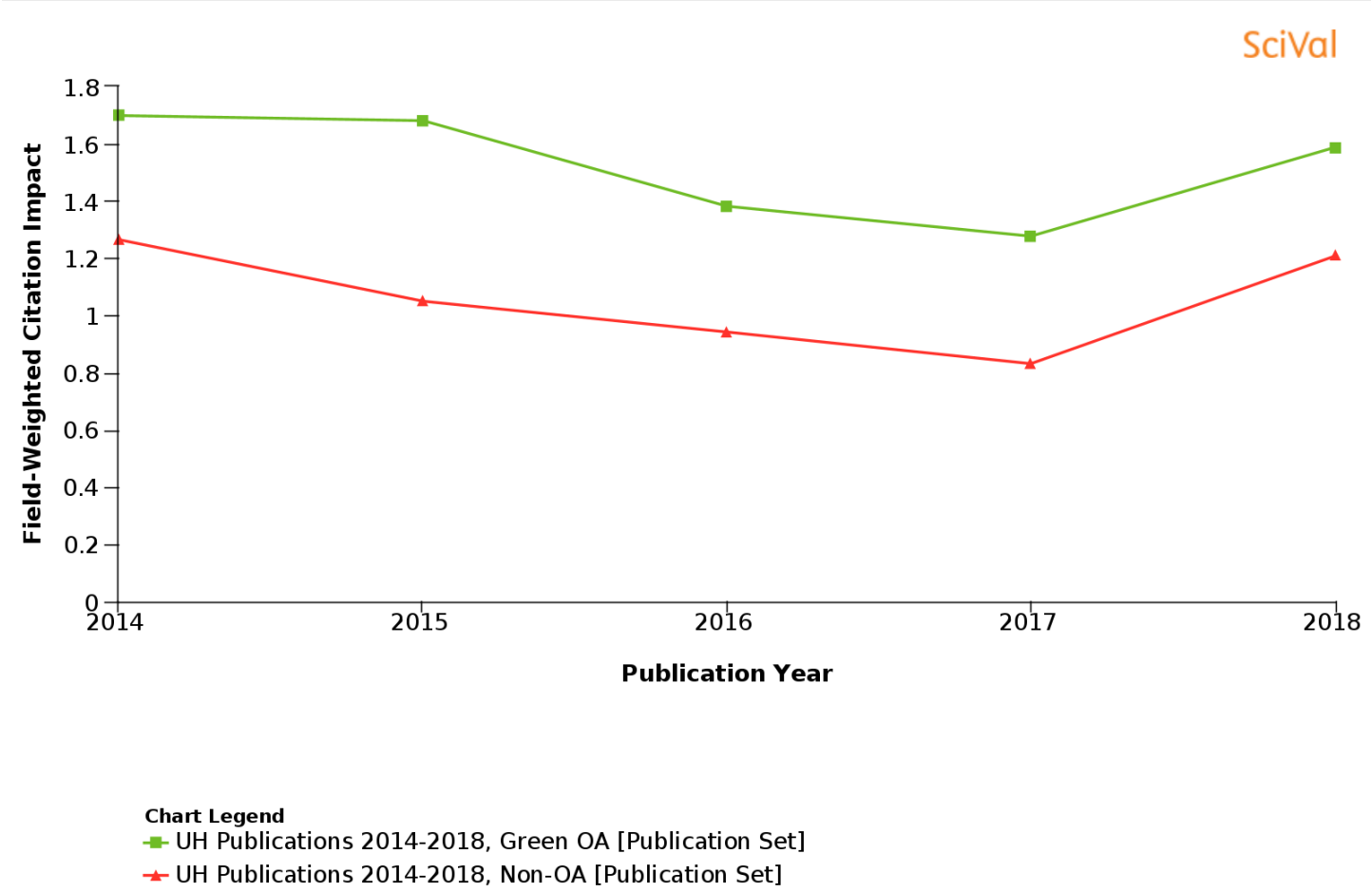
UH Publications 2014-2018 – Green OA vs Non-OA



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Publishers and the Open Access citation advantage

Springer Nature

Open access articles in hybrid journals attract more downloads, citations, and attention compared to those published behind a paywall.

In partnership with Digital Science, we analysed a global sample of over 70,000 articles published in Springer Nature hybrid journals. Our new white paper, *Assessing the open access effect for hybrid journals*, examines the relationship between open access (OA) and impact, demonstrating the wider value hybrid journals bring to researchers, funders, institutions, and society more broadly.

The global analysis showed that:

- ✓ On average, OA articles were downloaded 1.6 times more by users based at academic institutions and 4 times more by users overall, compared to non-OA articles.
- ✓ OA articles attracted an average of 1.6 times more citations.
- ✓ OA articles attracted an average of 2.4 times more Altmetric attention, with 1.9 times more news mentions than non-OA articles.

We sampled

73,925
articles from hybrid journals (globally)

9,114
articles in hybrid journals with UK authors

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Publishers and the Open Access citation advantage

Association for Computing Machinery

Association for Computing Machinery

Advancing Computing as a Science & Profession

ACM Signs New Open Access Agreements with Four Leading Universities

New ACM Open Publishing Model Promises to Accelerate ACM's Transition to Full Open Access

"As other publishers have found, our data is relatively clear that when an article is published on an open access basis it receives significantly more usage and citations, in other words 'impact.'"

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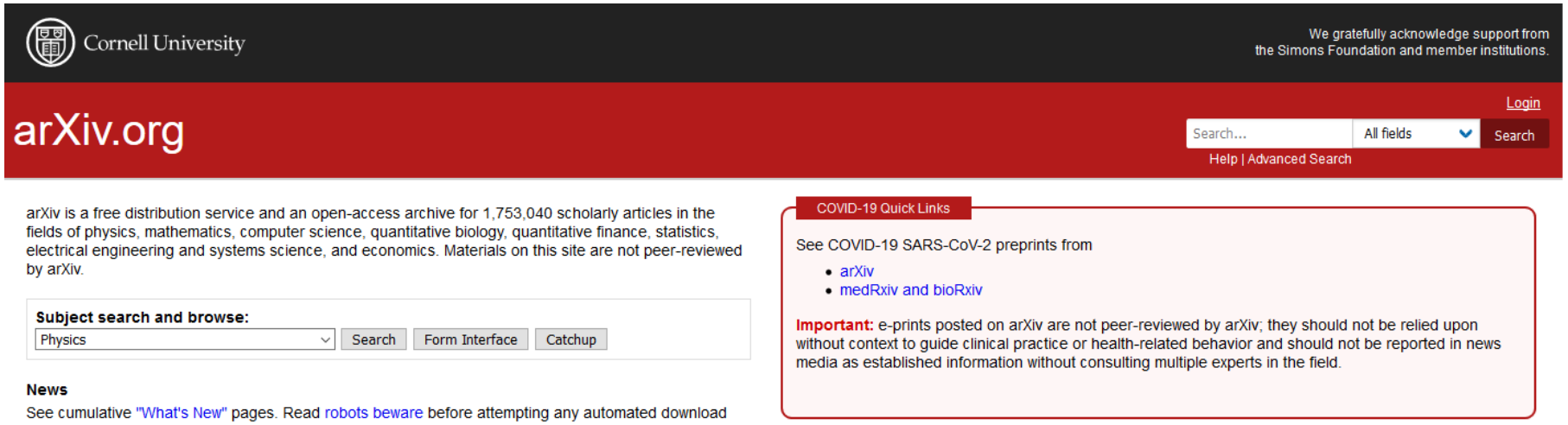

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- High Energy Physics - Experiment (**hep-ex** new, recent, search)
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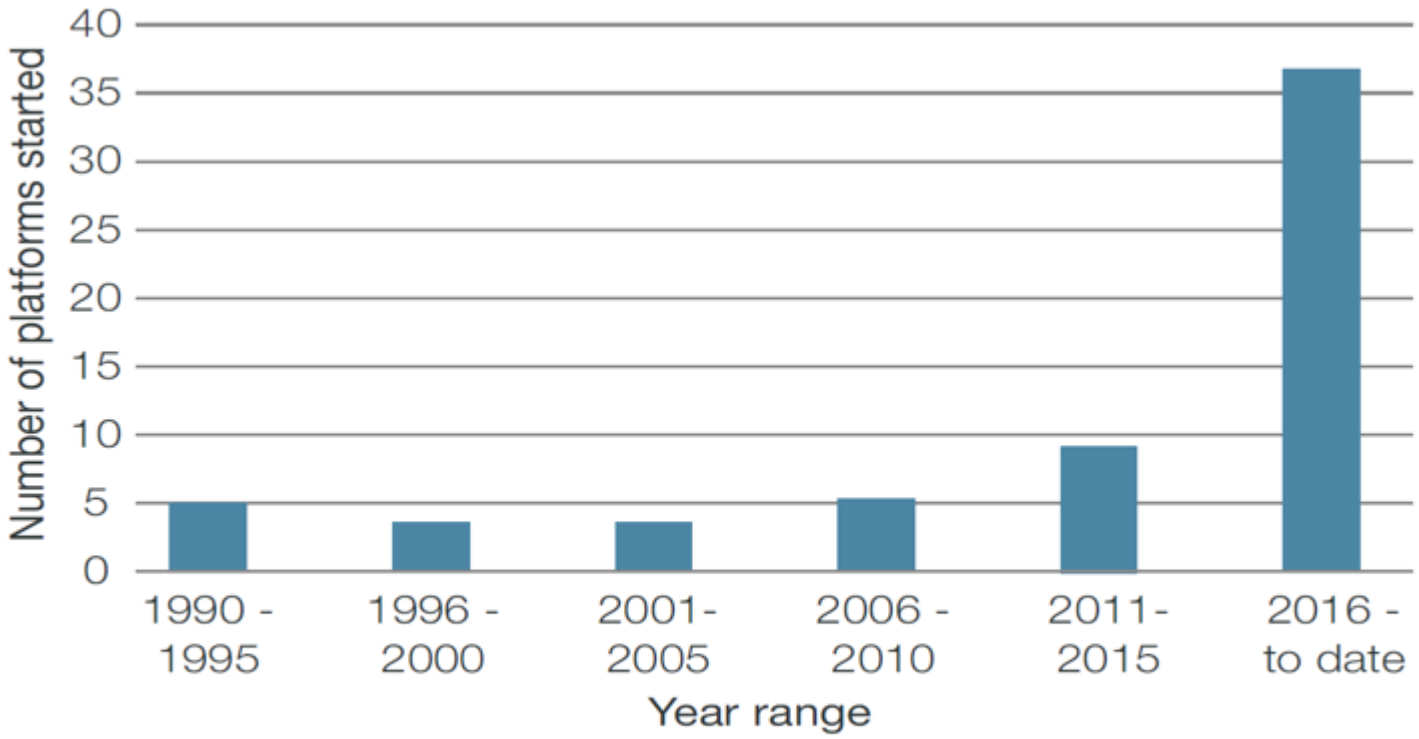
The rise of preprint servers



Number of preprint platforms started since the 1990s (source: Research Preprints and web research).

https://researchpreprints.com/preprintlist/

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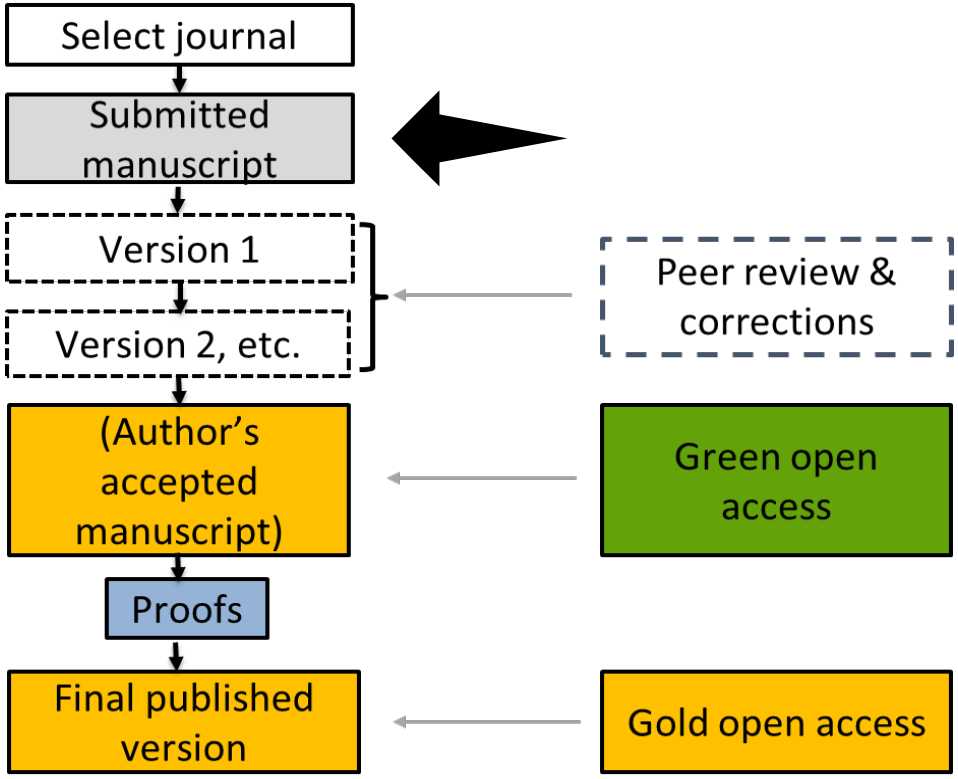

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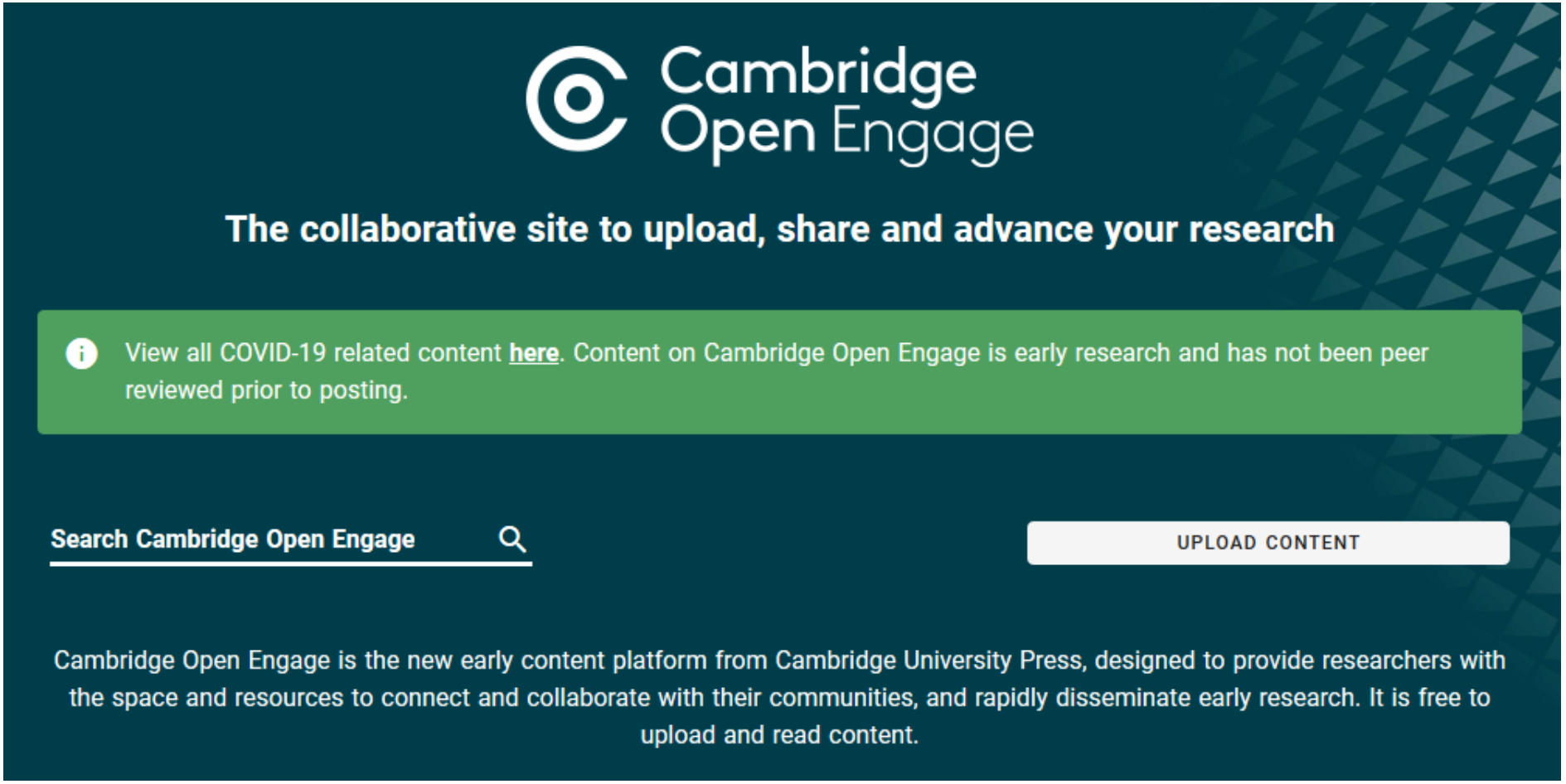

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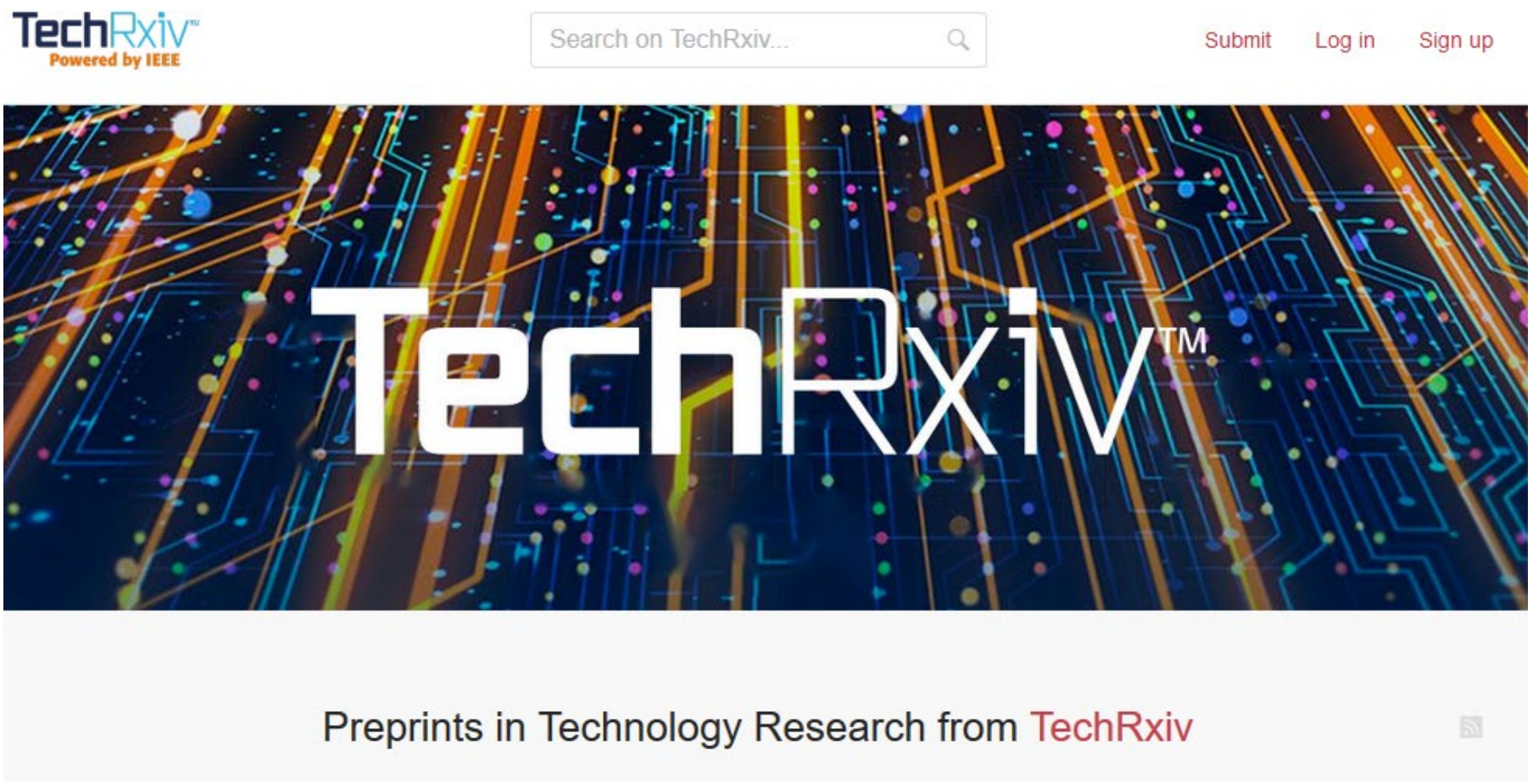

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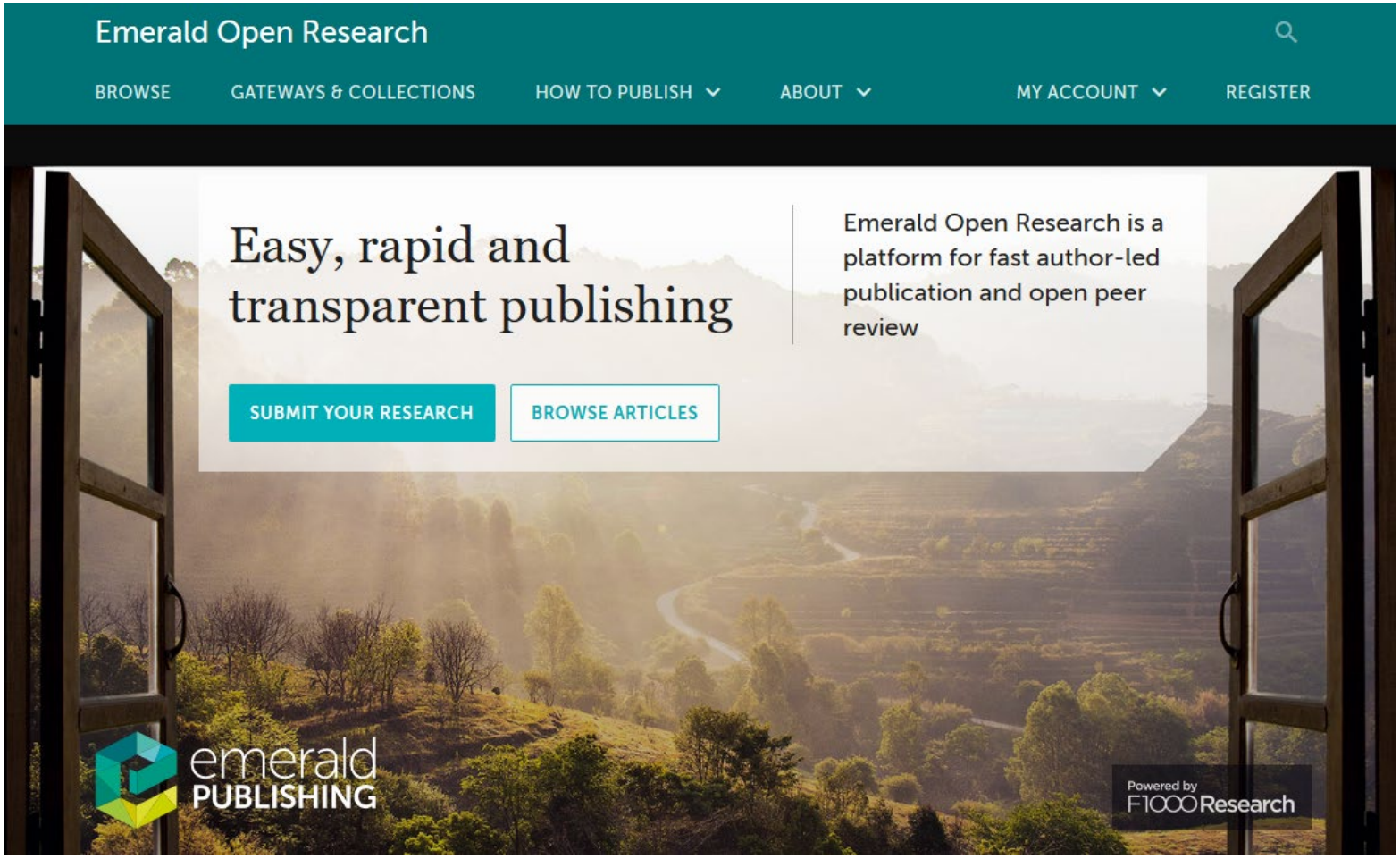

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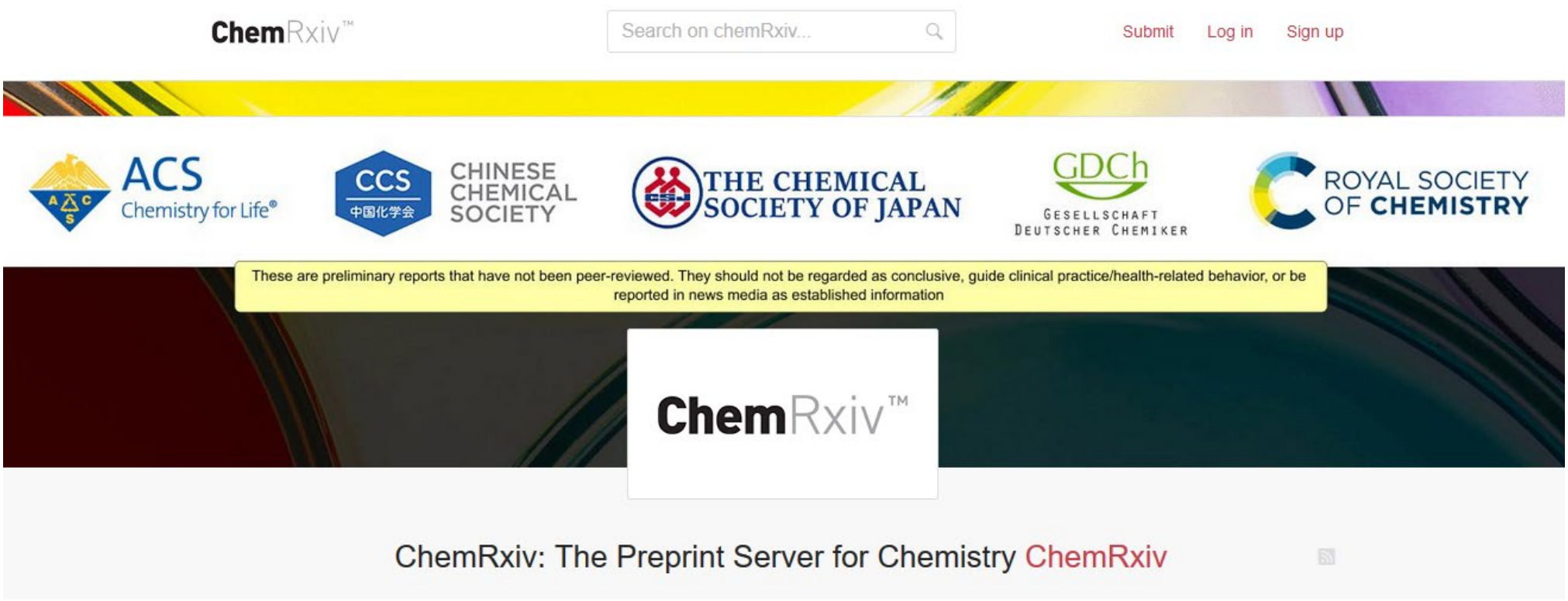

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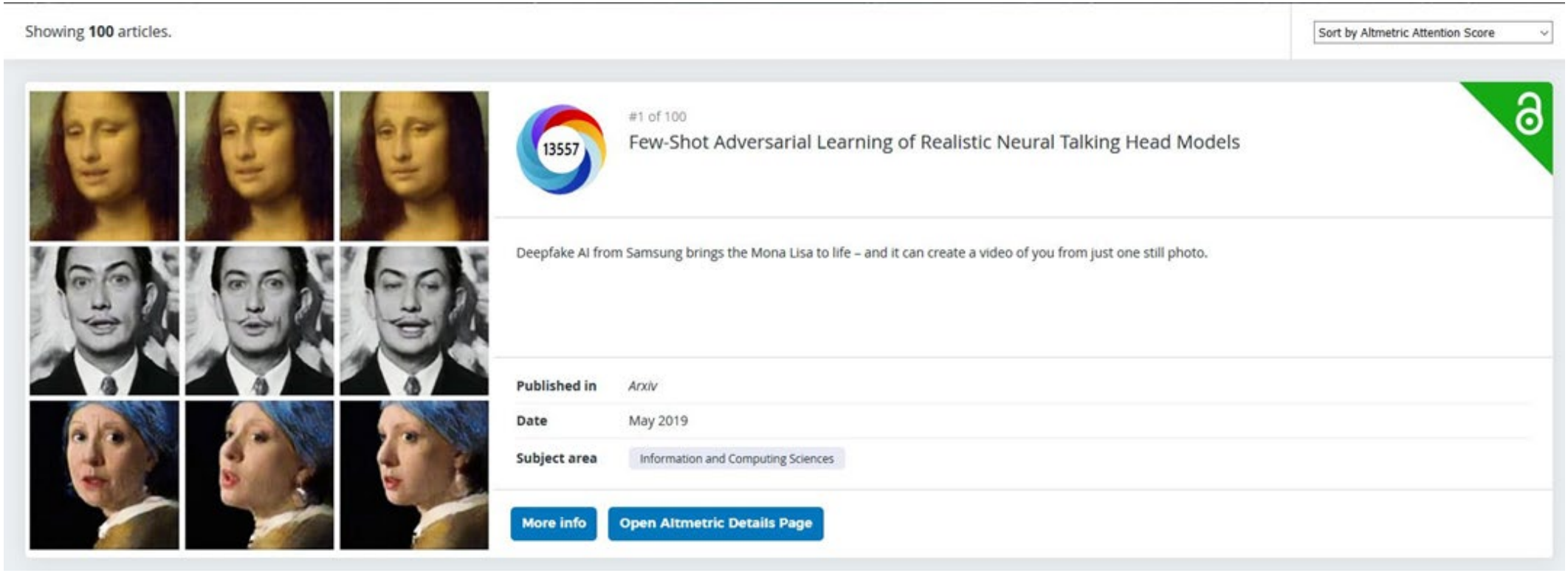

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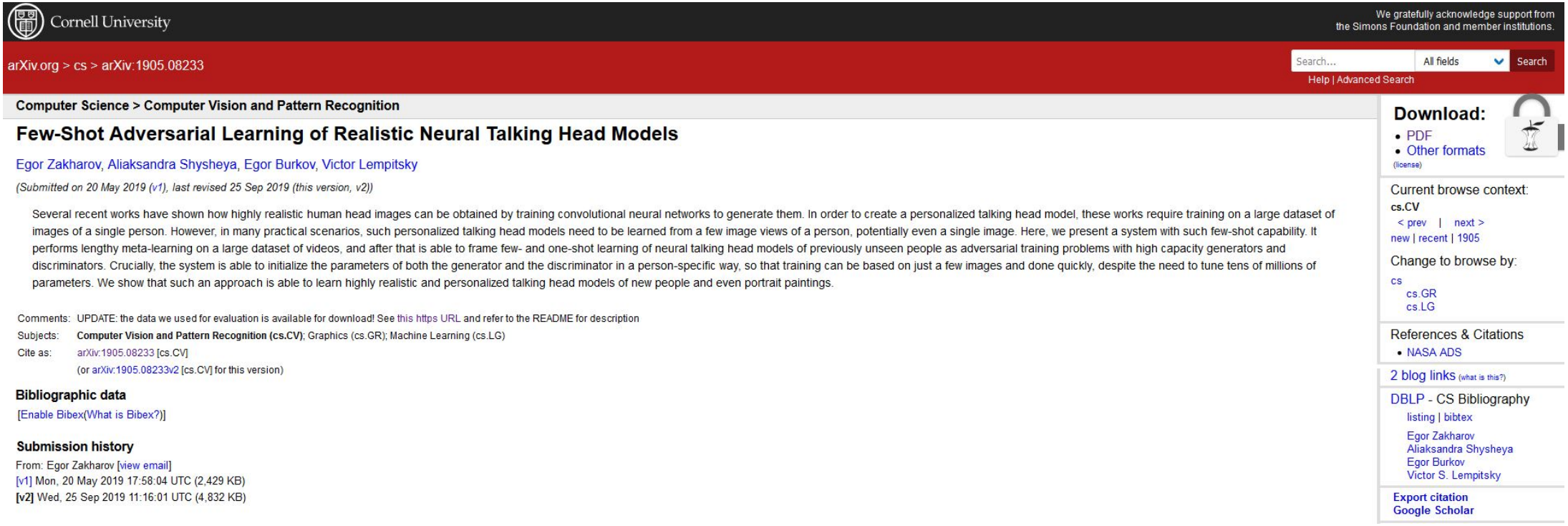

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Computer Science > Computer Vision and Pattern Recognition

Few-Shot Adversarial Learning of Realistic Neural Talking Head Models

Egor Zakharov, Aliaksandra Shysheya, Egor Burkov, Victor Lempitsky

(Submitted on 20 May 2019 (v1), last revised 25 Sep 2019 (this version, v2))

Several recent works have shown how highly realistic human head images can be obtained by training convolutional neural networks to generate them. In order to create a personalized talking head model, these works require training on a large dataset of images of a single person. However, in many practical scenarios, such personalized talking head models need to be learned from a few image views of a person, potentially even a single image. Here, we present a system with such few-shot capability. It performs lengthy meta-learning on a large dataset of videos, and after that is able to frame few- and one-shot learning of neural talking head models of previously unseen people as adversarial training problems with high capacity generators and discriminators. Crucially, the system is able to initialize the parameters of both the generator and the discriminator in a person-specific way, so that training can be based on just a few images and done quickly, despite the need to tune tens of millions of parameters. We show that such an approach is able to learn highly realistic and personalized talking head models of new people and even portrait paintings.

Comments: UPDATE: the data we used for evaluation is available for download! See this https URL and refer to the README for description

Subjects: **Computer Vision and Pattern Recognition (cs.CV)**; Graphics (cs.GR); Machine Learning (cs.LG)

Cite as: arXiv:1905.08233 [cs.CV]

(or arXiv:1905.08233v2 [cs.CV] for this version)

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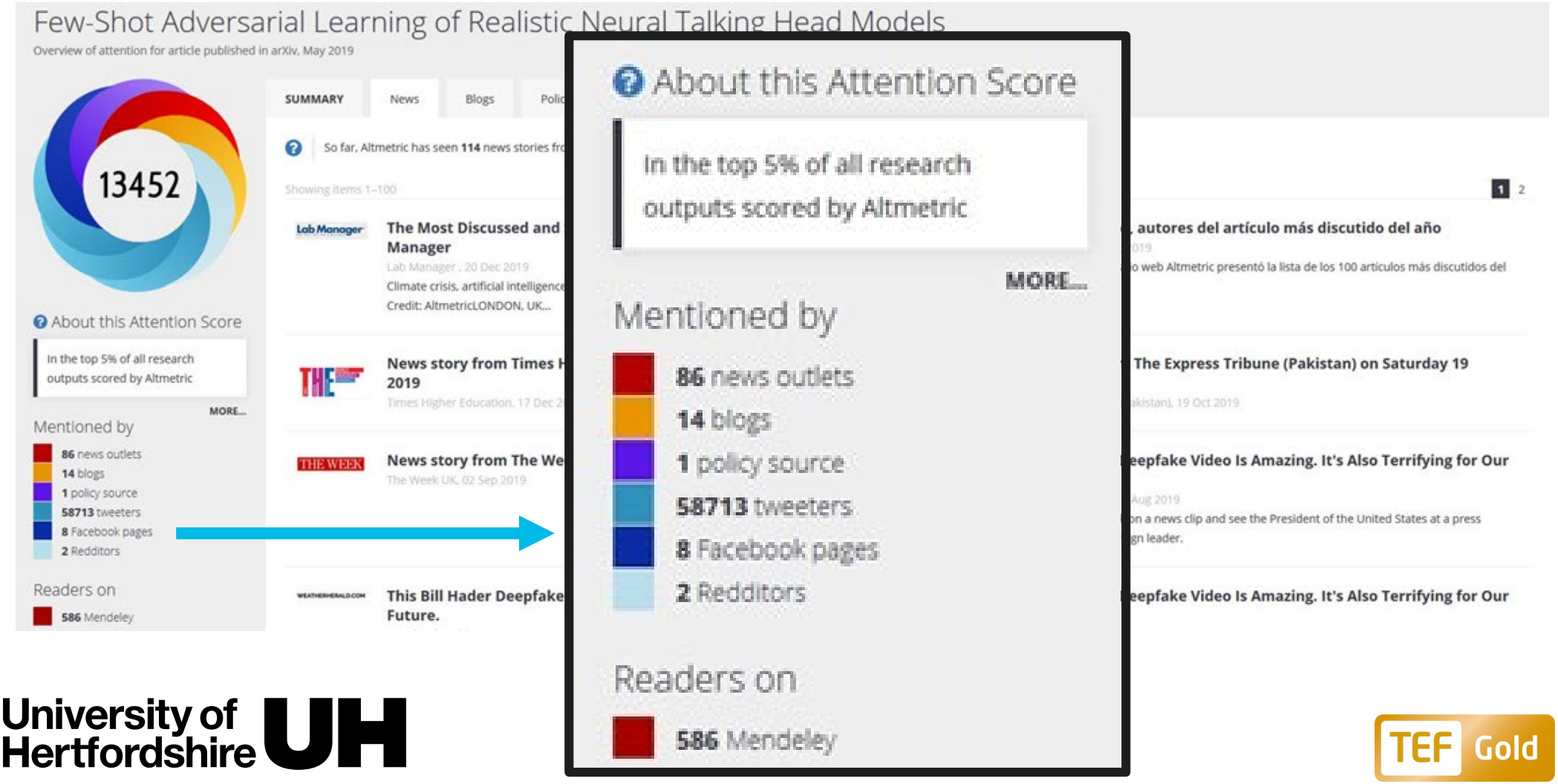

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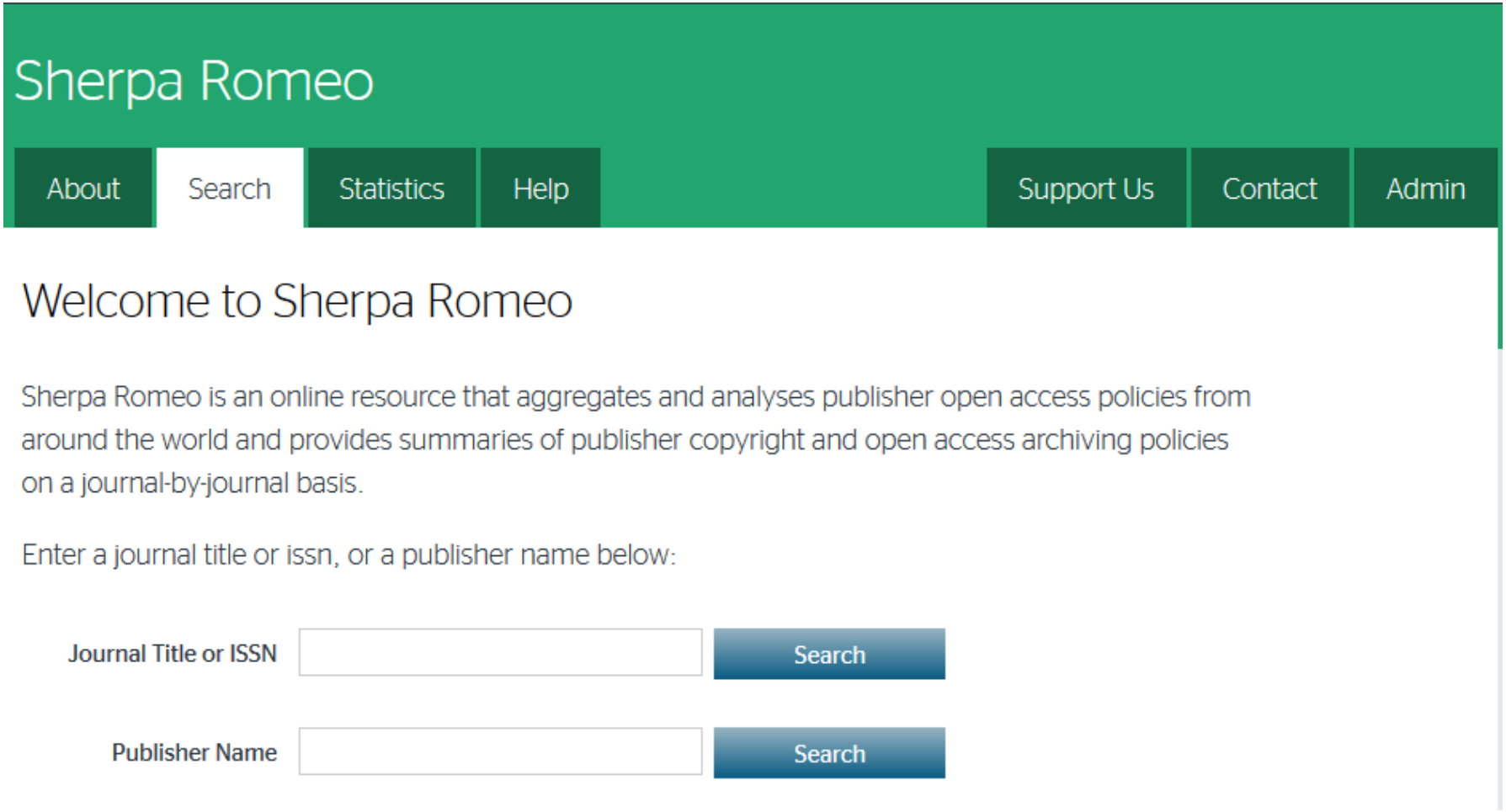

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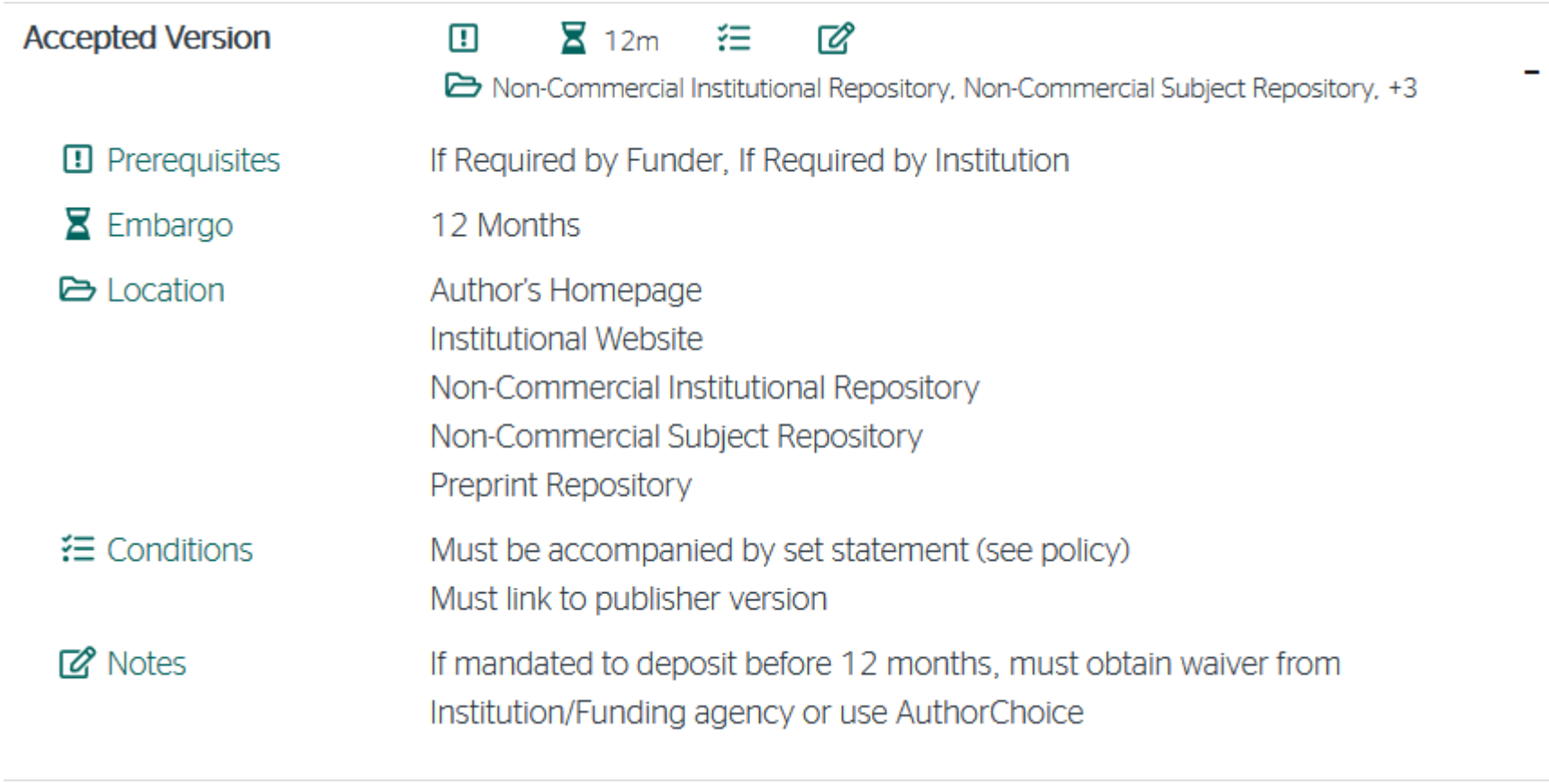

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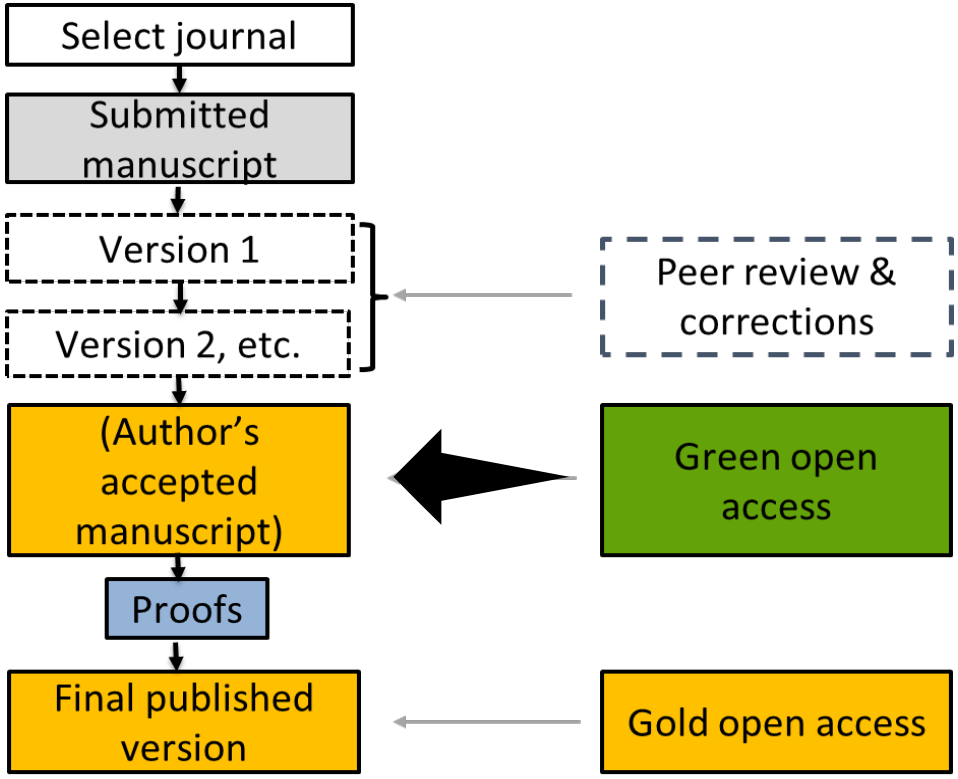

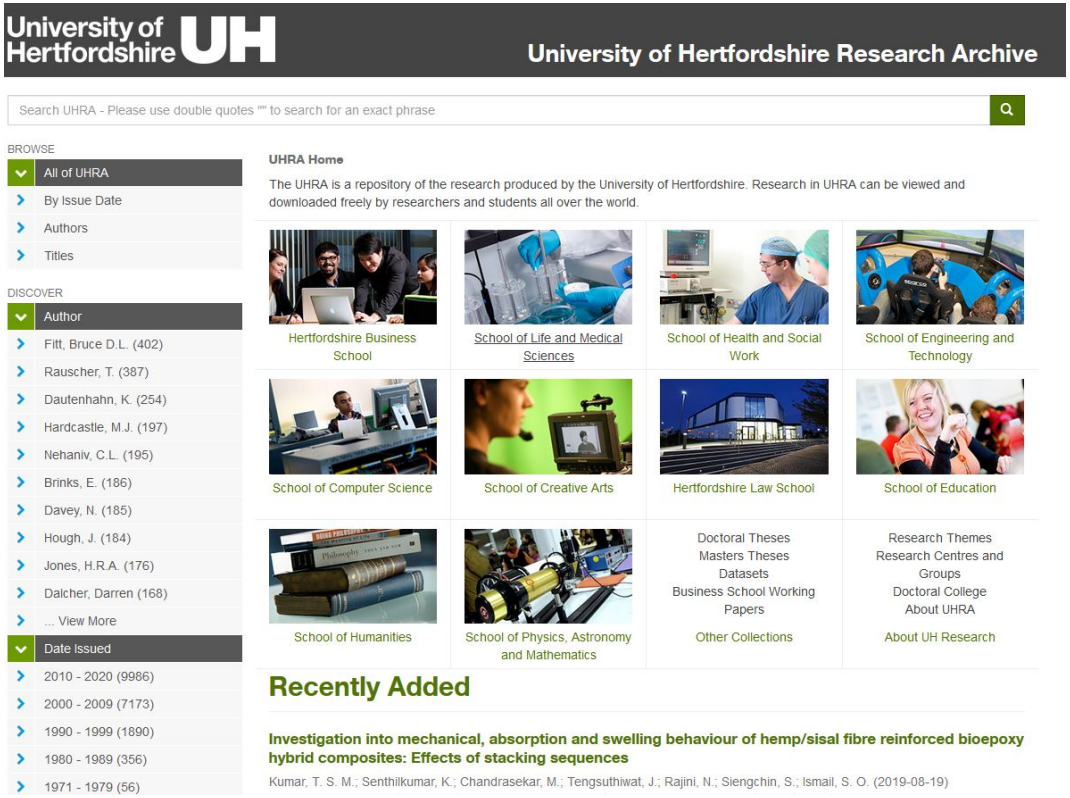

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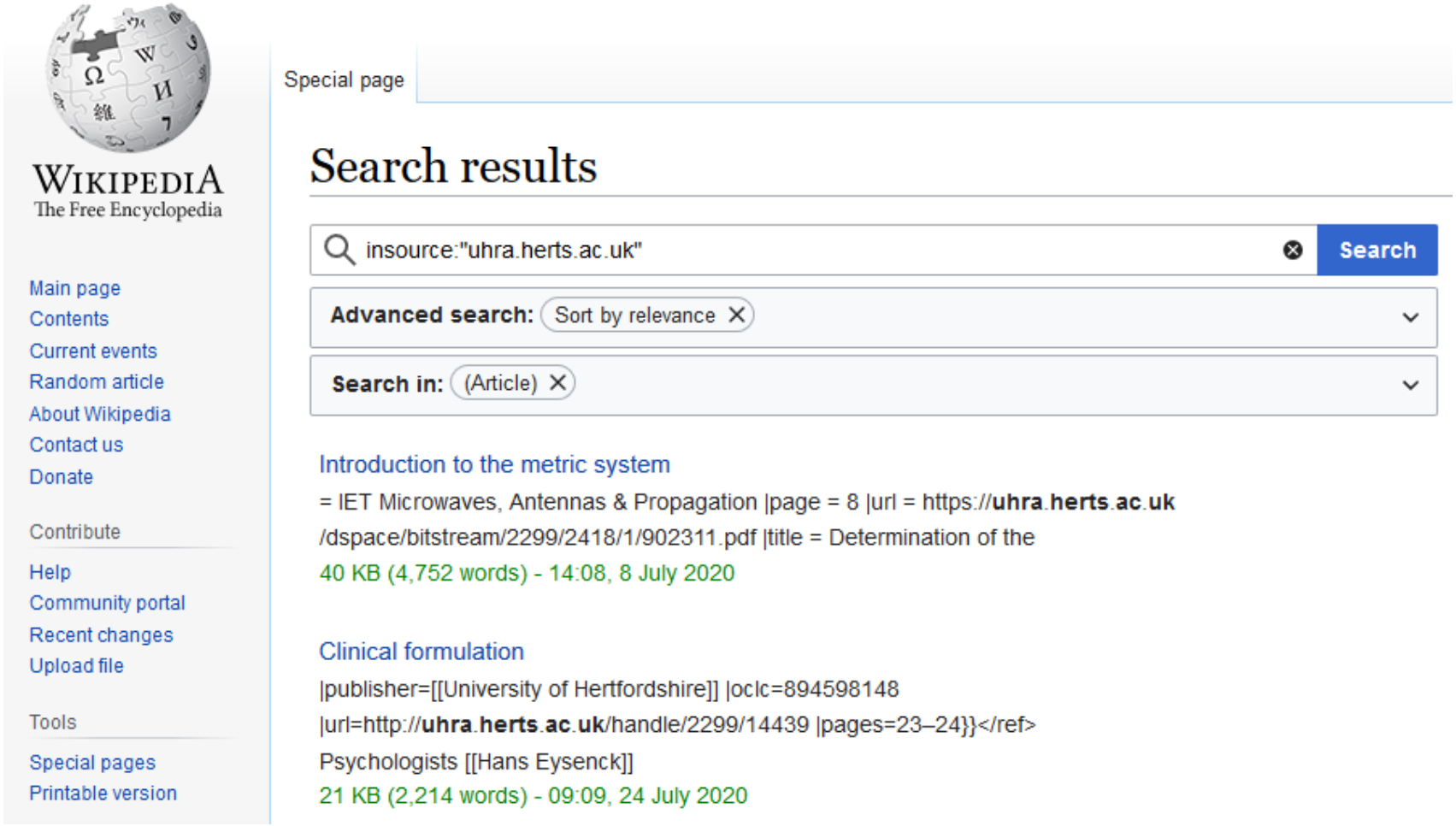

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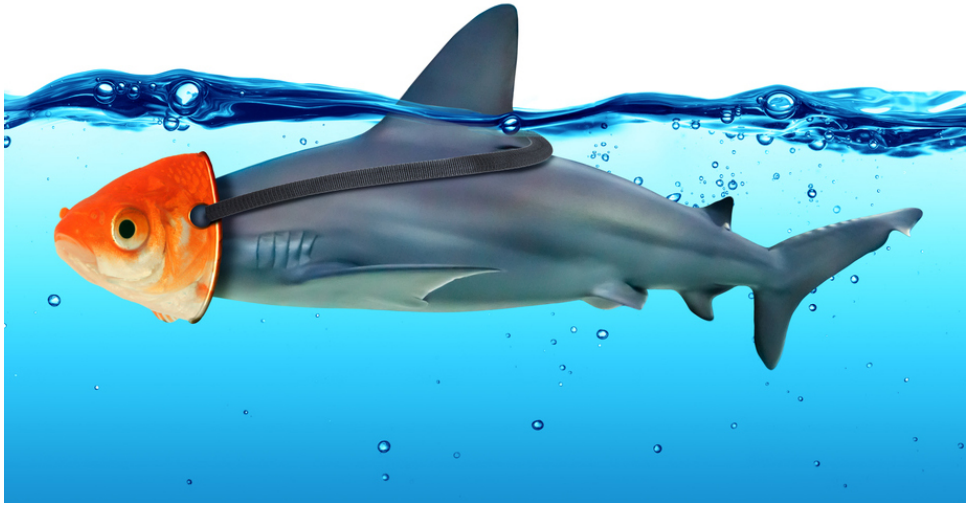

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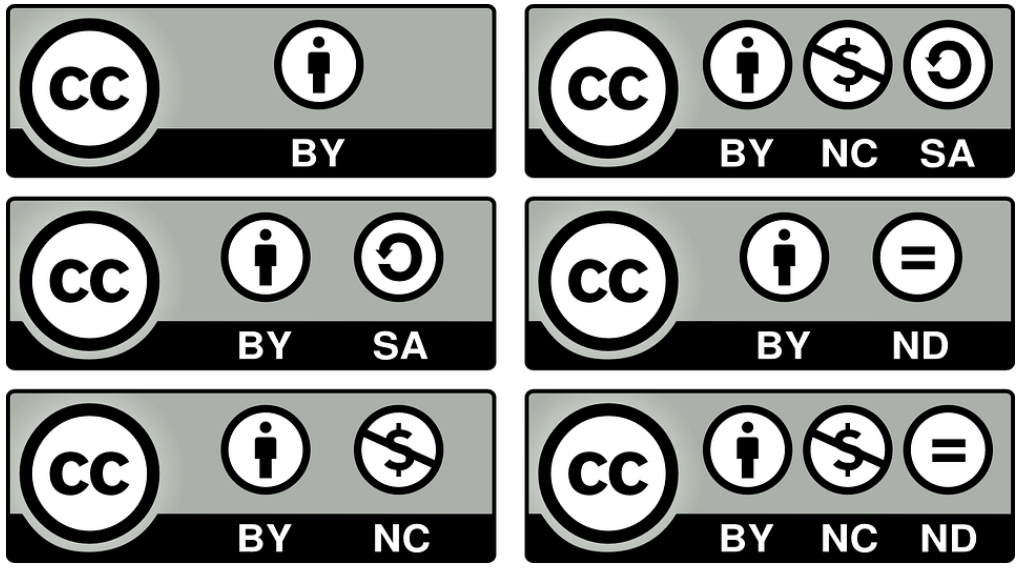

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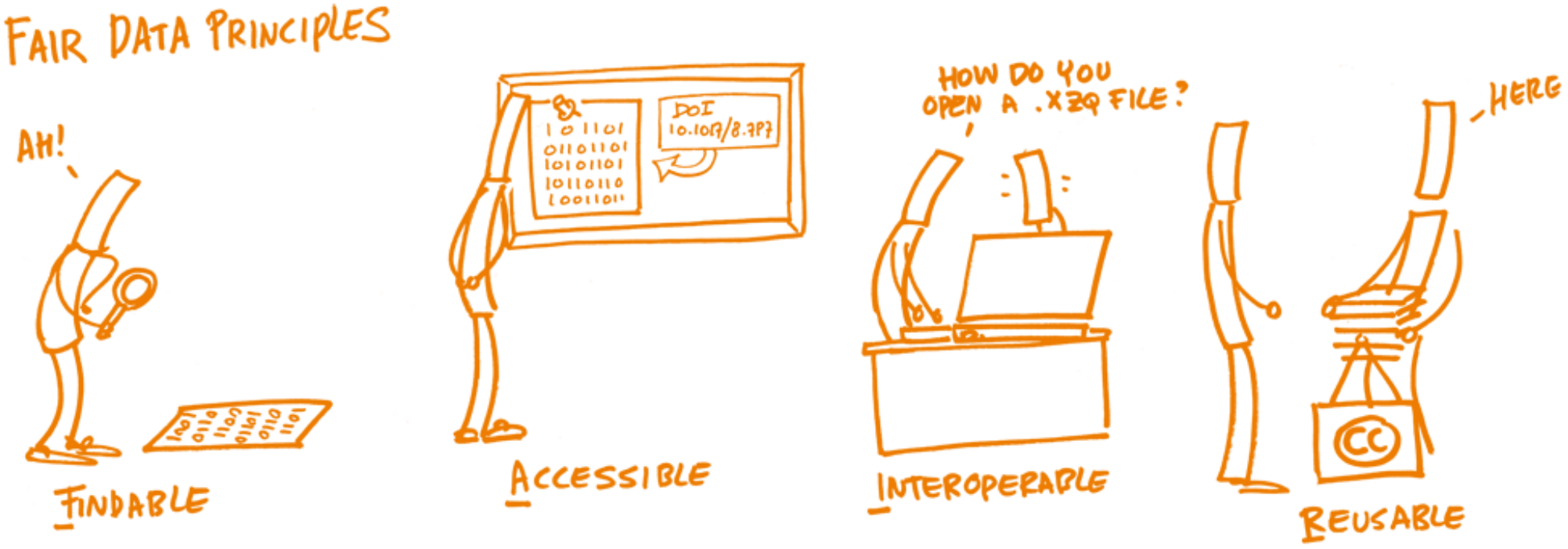

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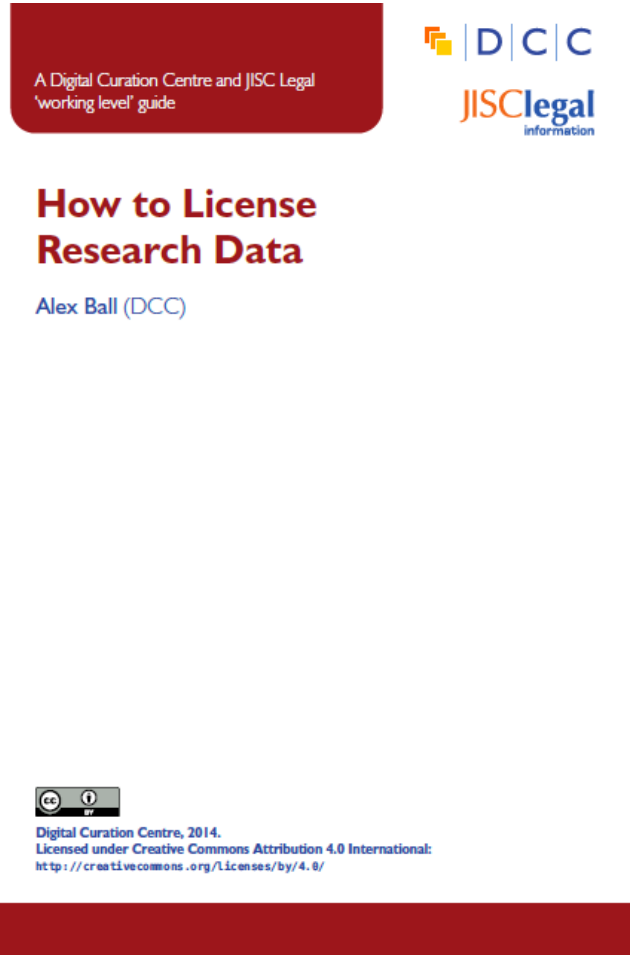

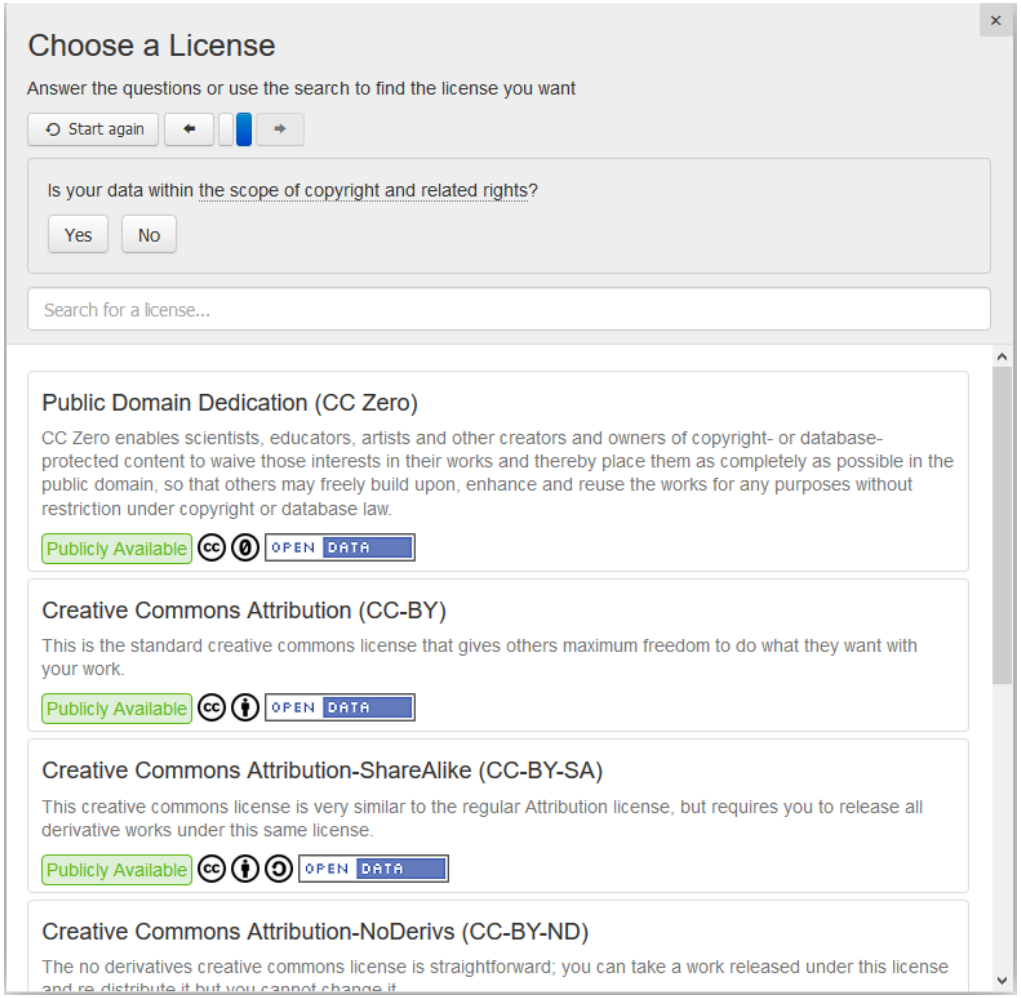

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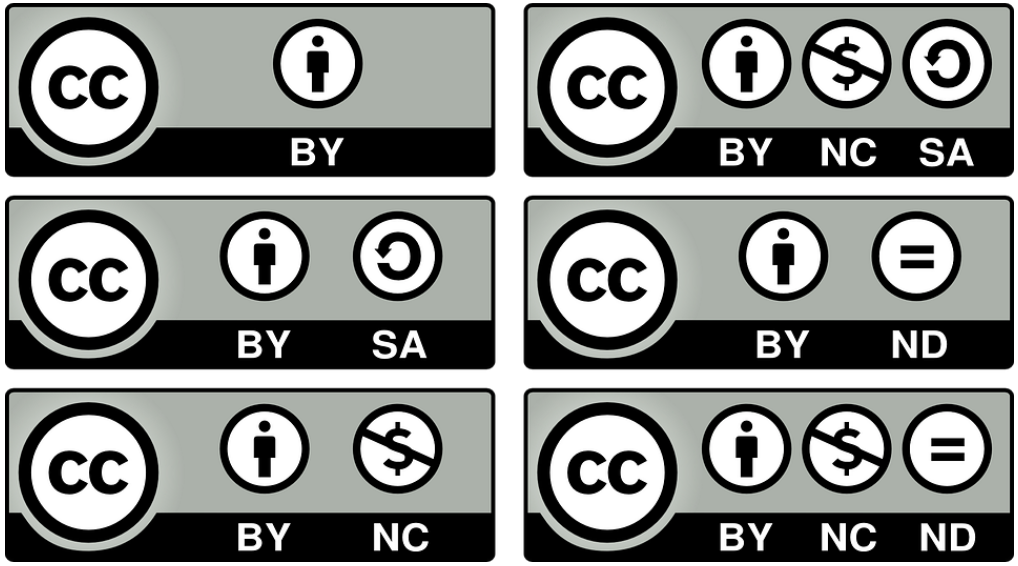

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1. Piwowar, H. A., Day, R. S., & Fridsma, D. B. (2007). Sharing detailed research data is associated with increased citation rate. *PLoS ONE, 2*(3) doi:10.1371/journal.pone.0000308

2. Piwowar, H. A., & Vision, T. J. (2013). Data reuse and the open data citation advantage. *PeerJ, 2013*(1) doi:10.7717/peerj.175

3. Colavizza, G., Hrynaszkiewicz, I., Staden, I., Whitaker, K., & McGillivray, B. (2019). The citation advantage of linking publications to research data. [Preprint]. Available at arXiv https://arxiv.org/abs/1907.02565.

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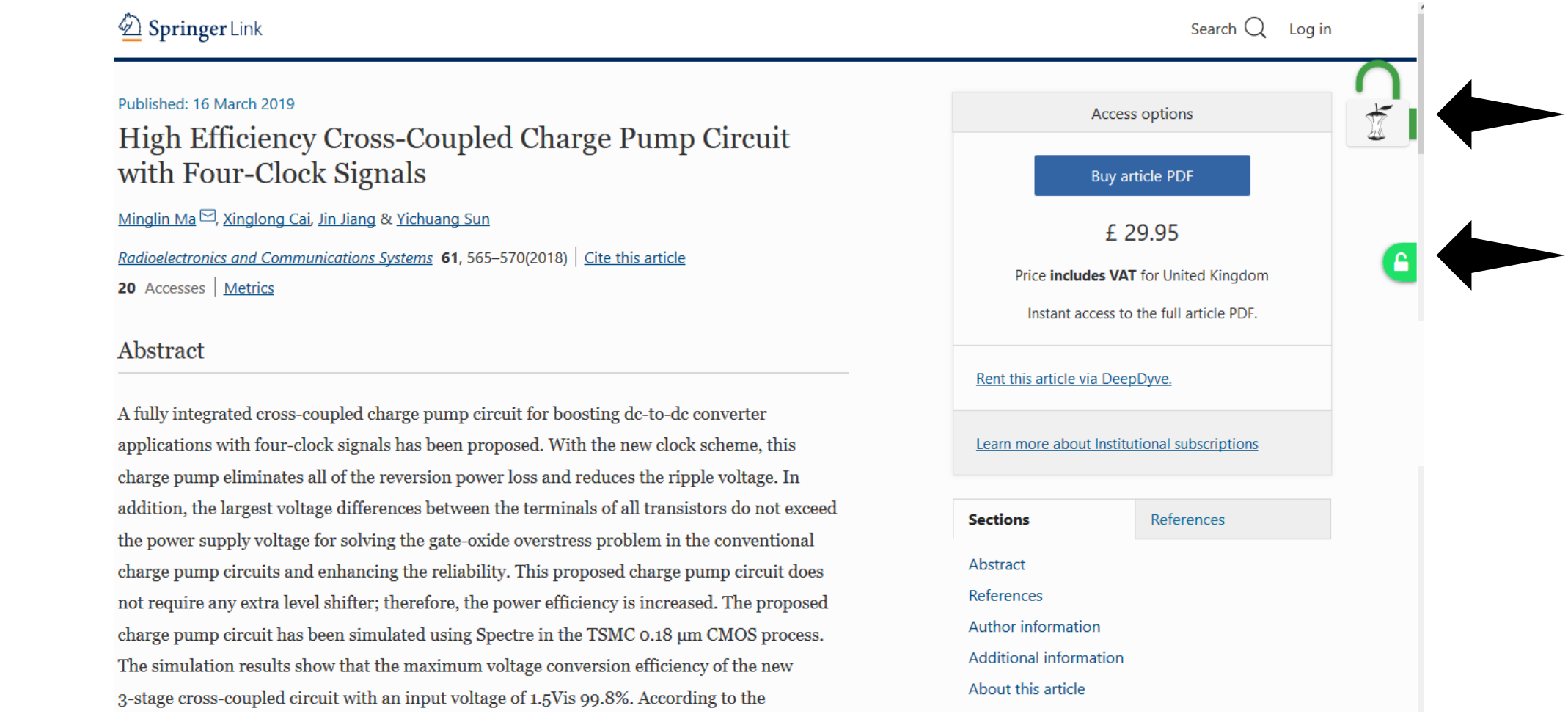

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High Efficiency Cross-Coupled Charge Pump Circuit with Four-Clock Signals

Minglin Ma, Xinglong Cai, Jin Jiang & Yichuang Sun

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Abstract

A fully integrated cross-coupled charge pump circuit for boosting dc-to-dc converter applications with four-clock signals has been proposed. With the new clock scheme, this charge pump eliminates all of the reversion power loss and reduces the ripple voltage. In addition, the largest voltage differences between the terminals of all transistors do not exceed the power supply voltage for solving the gate-oxide overstress problem in the conventional charge pump circuits and enhancing the reliability. This proposed charge pump circuit does not require any extra level shifter; therefore, the power efficiency is increased. The proposed charge pump circuit has been simulated using Spectre in the TSMC 0.18 μm CMOS process. The simulation results show that the maximum voltage conversion efficiency of the new 3-stage cross-coupled circuit with an input voltage of 1.5Vis 99.8%. According to the

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Design of High Efficiency Cross-Coupled Charge Pump Circuit with Four-clock Signals

Minglin Ma[1,2], Xinglong Cai[1], Jin Jiang[1] and Yichuang Sun[2]

1. Key Laboratory of Intelligent Computing & Information Processing of Ministry of Education, Xiangtan University, Hunan, 411105, China
2. School of Engineering and Technology, University of Hertfordshire, Hatfield, AL10 9AB, UK

***Abstract*—A fully integrated cross-coupled charge pump circuit for boosting dc-to-dc converter applications with four-clock signals has been proposed. With the new clock scheme, this charge pump eliminates all of the reversion power loss and reduces the ripple voltage. In addition, the largest voltage differences between the terminals of all transistors do not exceed the power supply voltage to solve the gate-oxide overstress problem in the conventional charge pump circuits and enhance the reliability. This proposed charge pump circuit does not require any extra level shifter, therefore the power efficiency is increased. The proposed charge pump circuit has been simulated using Spectre in the TSMC 0.18μm CMOS process. The simulation results show that the maximum voltage conversion efficiency of the new 3-stage cross-coupled circuit with an input voltage of 1.5V is 99.8%. According to the comparison result of the conventional and this enhanced charge pump, the output ripple voltage has been significantly reduced.**

***Keywords*—Cross-coupled charge pump; Reversion power loss; Ripple voltage; Four-clock signal**

I. Introduction

Using switched-capacitor charges, charge pump circuits have been often used to convert a dc input voltage to another dc output voltage, it can generate a voltage larger than the supply voltage or lower than the ground of the chip. Charge pumps can provide tens or hundreds of mA current for subsequent signal processing blocks. Supplying a stable and higher DC voltage to all the embedded Intellectual Properties (IPs) becomes an important challenge. The advantage of charge pump circuits is low cost, low EMI and small size. For these reasons, the design issues are always focused on high pump-efficiency, high power-efficiency, higher output power, and low output ripple voltage.

In 1976, J. F. Dickson proposed a Dickson charge pump with diode-connected NMOS transistors instead of diodes. This kind of charge pump can be easily implemented in a standard CMOS process [1]. However, due to the body effect, the high NMOS transistor threshold voltage reduces the boost efficiency. J. T Wu and K. L Chang proposed dynamic charge transfer switches (CTS) instead of diode-connected NMOS transistors, making the NMOS fully open to eliminate the threshold voltage [2]. However, in multi-stage charge pump circuits, diode-connected CMOS transistors still exist in the final output stage. This will lead to a certain threshold loss problem, while the substrate effect still exists. Cross-coupled voltage doublers are widely used, due to its less voltage drop between the drain terminal and source terminal of each switch. The main disadvantage of Cross-coupled voltage doublers is that they have three kinds of reversion loss: the reversion loss from the output to the

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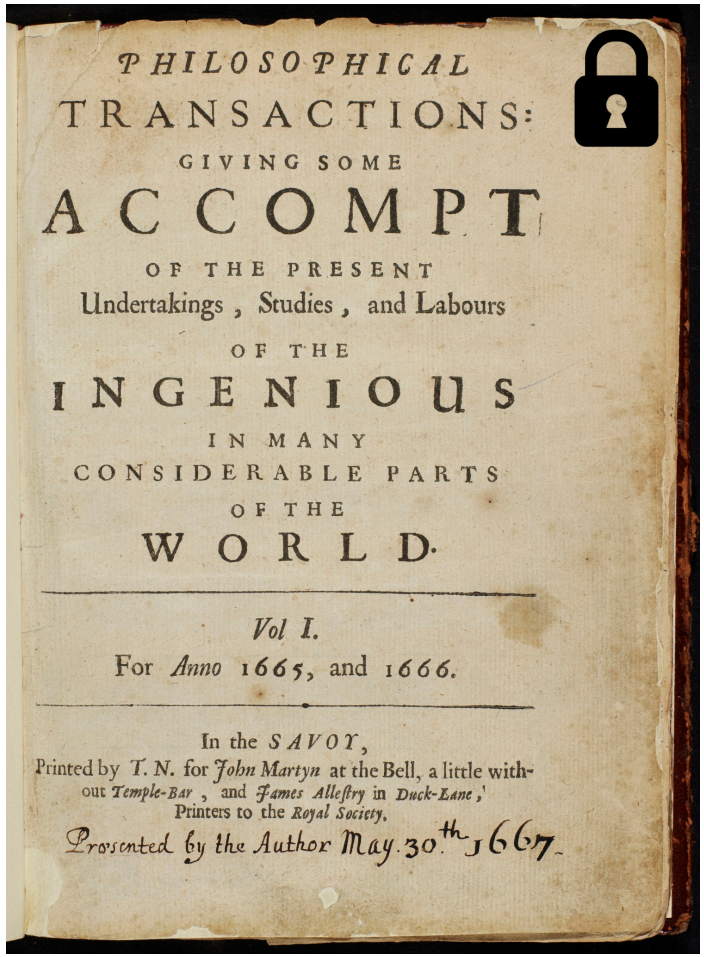

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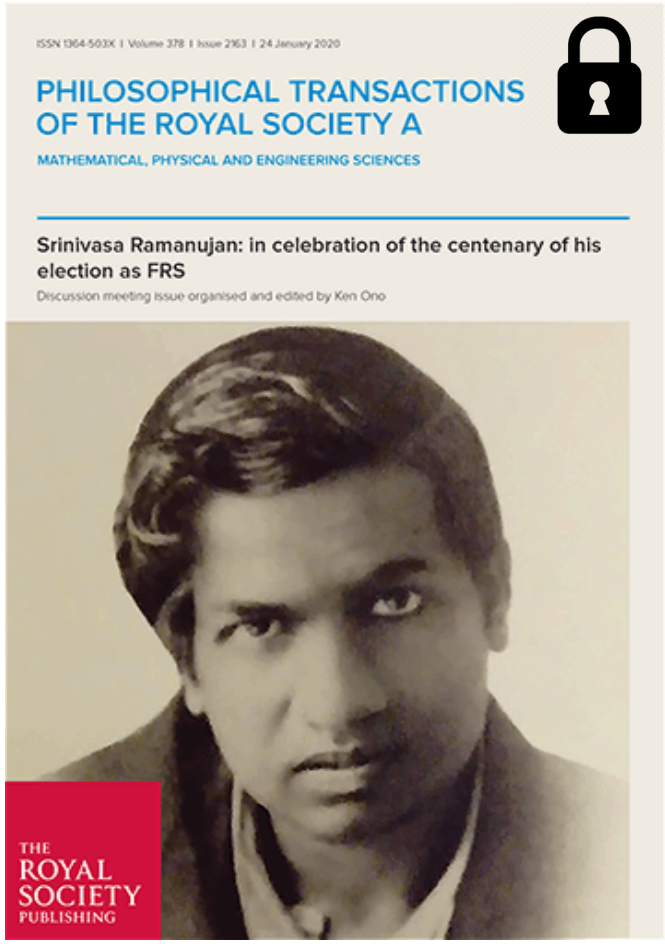

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Questions

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