

## SCIENTIFIC COMMUNICATIONS

Discussion paper

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## DOP identifier: A new method of identification of scholarly publications


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**Abstract.** An effective identification system for scholarly publications should include essential identifying information, such as the author's name, publishing journal, and date of publication. However, current Persistent Identifiers (PIDs) often lack such important details, as their primary goal is to link online publications to their web sources. In print versions, these PIDs become ineffective since their main purpose is to locate online content only. To address these limitations, a new identification and linking system, called DOP (Date of Publication) is proposed, based on four key variables: 1) the first author's name, 2) the journal's name, 3) the date of publication (DOP), and 4) the time of publication. With such identifying features, DOP links can identify scholarly publications efficiently both in print and online settings. For instance, a paper published by author A in journal J on date D and time T can have a DOP identifier link as follows: DOP>AuthorA/JournalJ/D/T, where D refers to the date of publication (year, month, and day), and T refers to the time of publication (hour, minute, and second). This format provides several advantages: it offers key identifying information within the links themselves; the date and time make DOP identifiers specific among journals and between authors; it fits with common citation styles that typically rely on similar variables; and even if the original publication link turns out to be broken, moved, or no longer exists, informative data remain visible within the DOP link itself. Furthermore, a large bibliographic database can be established based on DOP identifiers for the identification and indexation of scientific publications in one and the same place. DOP identifiers can thus offer a global, robust, cohesive, clear and human readable way to identify scholarly publications from around the world.

**Keywords:** scholarly publication, persistent digital identifier, PID identifier, digital object identifier, DOI identifier, DOP identifier, date of publishing, date of publication, indexation database, identification linkage, open archiving database, open-source tool, bibliography database, bibliography indexes, manuscript identification

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## Идентификатор DOP: новый метод идентификации научных публикаций

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**Резюме.** Эффективная система идентификации научных публикаций должна содержать такую важную информацию, как имя автора, название журнала, в котором опубликована статья, и дату ее публикации. Однако существующие постоянные идентификаторы (persistent identifiers, PIDs), как правило, не содержат таких данных, поскольку основная цель этих идентификаторов – связывать

онлайн-публикации с их веб-источниками. В печатных версиях постоянные идентификаторы теряют свою функциональность, так как предназначены исключительно для поиска контента в интернете. Для решения этой проблемы был предложен новый метод идентификации и связывания научных публикаций – идентификатор DOP (date of publication – «дата публикации»). Он основан на четырех ключевых элементах: 1) имени первого автора, 2) названии журнала, 3) дате публикации (DOP), 4) времени публикации. Благодаря этим параметрам идентификатор DOP позволяет эффективно идентифицировать публикации как в цифровом, так и в печатном формате. Например, статья, опубликованная автором А в журнале J в дату D и время T, будет иметь идентификатор DOP следующего формата: DOP>AuthorA/JournalJ/D/T, где D обозначает дату публикации (год, месяц, день), а T – время публикации (час, минута, секунда). Данный подход имеет ряд преимуществ: DOP содержит основную информацию прямо в ссылке; уникальность идентификаторов достигается за счет точной даты и времени публикации; формат DOP совместим с привычными способами цитирования, использующими аналогичные переменные; даже если исходная ссылка будет перемещена, удалена или недоступна, идентификатор DOP сохранит все основные данные для идентификации публикации. Кроме того, идентификаторы DOP можно использовать для создания глобальной библиографической базы данных, которая обеспечит централизованную идентификацию и индексирование научных публикаций. Система идентификаторов DOP предлагает универсальный, надежный, прозрачный и удобный способ идентификации научных работ, обеспечивающий их доступность и корректную атрибуцию.

**Ключевые слова:** научная публикация, постоянный цифровой идентификатор, PID, цифровой идентификатор объекта, идентификатор DOI, идентификатор DOP, дата публикации, индексная база данных, идентификационная связь, открытая архивная база данных, инструмент с открытым исходным кодом, библиографическая база данных, библиографические индексы, идентификация рукописей

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### **DOP (Date of Publication): a new approach to identify and link scholarly publications**

Scholarly publications are knowledge products produced by individuals, published in journals, and characterized by specific titles and dates. They are also cited according to the same principle, using authors' names, journals' names, publications' dates, and articles' titles. Therefore, a robust identification system should reflect all or at least some of these defining characteristics to ensure informativeness, readability, and conformity with citation styles. However, current persistent identifiers (PIDs) frequently employ intricate sequences of abstract numbers and characters, which may not represent the most effective or user-friendly approach for identifying scholarly works [1].

To tackle these issues and establish an effective identification approach for scholarly publications, I propose a new linking and identifying method

called DOP (Date of Publication) that incorporates four essential features of any scholarly work:

- the author's name,
- the journal's name,
- the date of publication (hence “DOP”), and;
- the time of publication.

In this system, the author's name refers to the last name of the first (or main) author, while the journal's name indicates its preferred name or common abbreviation. The date of publication includes the year, month, and day, while the time of publication specifies the hour, minute, and second.

These attributes offer the dual advantage of being both variable and specific, as each scholarly publication is inherently characterized by an author's name, a publishing platform (typically a journal or website), a date of publication, and a specific time of publication. While article titles are also important for good identification, they are often lengthy and have been omitted here to keep DOP identifiers concise and readable. Standardi-

zing DOP links in a specific order allows to maintain them informative, readable, and comprehensible by human users.

For example, an identification DOP link can take the following format:

>DOP: FirstAuthorLastName/  
JournalName(OR)abbreviation/year-month-day/  
hour-minute-second.

The extensions of the domain names (i.e., “.org, .com, .net, etc.”), the “www” and titles of publications (often long) can be omitted to keep DOP identifiers short.

A paper published by Author A in Journal J on 31 December 2024 at 23 o'clock 59 minutes, 59 seconds (one of the longest date format possible), can be identified by an identification DOP link as follows:

>DOP: AuthorA/JournalJ/Y2024M12D31/  
hh23mm59ss59,

where Y – year, M – month, D – day, hh – hour, mm – minutes, ss – second.

Another format could be:

DOP: FirstAuthorLastName/JournalName/  
Date(Y-M-D)/Time(h-m-s).

As such, the above example can take the following format:

>DOP: AuthorA/JournalJ/Y2024M12D31/  
T23h59m59s.

Alternatively, the format can use the variables of dates and times combined or attached (not separated by space or any other separator) as follows:

>DOP: AuthorA/JournalJ/D20241231/T235959

where “D20241231” refers to the date: 2024, 12, 31, and “T235959” refers to the time: 23 o'clock, 59 min, 59 sec).

DOP identifiers can be further shortened by employing a one-digit format for both the date and time, omitting leading zeros where applicable. For example, a DOP link that shows: “AuthorA/JournalJ/D2511/T567” could identify a paper published on January 1, 2025, at 5:06:07, by the author A in the journal J (where D2511 refers to the date: 2025, month 1, day 1, and T567 refers to the time: 5 O'clock, 6 minutes, second 7).

That being said, using the four variables – author's name, journal name, date of publication, and

time of publication – DOP links can be customized in various orders to generate unique and tailored DOP identifiers, such as:

– DOP: FirstAuthorLastName/JournalName/yyyyMMdd/hhmmss

– DOP: JournalName/FirstAuthorLastName/yymd/hhmmss

– DOP: JournalName/FirstAuthorLastName/D/T

– DOP: FirstAuthorLastName/D/T/JournalName

However, to facilitate standardization and consistency, DOP links should adhere to a single, uniform format that is consistently applied within each journal or publisher. In other words, each journal and publisher can choose a different DOP identifier structure, but within a given journal or publisher, the same DOP identifier format should be used to ensure internal consistency while allowing flexibility across different publications. Ideally, if the same DOP identifier format could be used across all journals and publishers, it would provide the highest level of interoperability, ensuring seamless integration and consistency throughout the scholarly ecosystem. However, achieving such uniformity may not be easily feasible, much like the varied citation styles and formats used by different journals.

## Advantages of DOP Identifier System

The proposed DOP identification system can offer several advantages and benefits, including:

**1. Unicity and specificity.** DOP identifiers are inherently unique due to their inclusion of date and time down to the second, making the probability of duplicate assignments extremely low. It is unlikely that more than one paper would be published by the same author in the same journal at the exact same second. With time measured in minutes and seconds, along with the date, the potential for creating distinct DOP links is virtually limitless, ensuring that DOP identifiers remain clear, unambiguous and effectively eliminating confusion or misidentification. Identification by date and time is an effective method for both identification and archiving.

**2. Informative and context-rich.** The incorporation of the author's name, journal's name, date, and time of publication allows DOP identifiers to provide immediate context about the

referenced work. While this may result in longer URLs, the focus of this identification system is to prioritize effective identification over the brevity of links. For manuscripts with multiple versions (e.g., preprints), DOP identifiers showcase the chronological order, making each version easily and clearly recognizable. This is also beneficial for versions published in different languages, where current digital object identifier (DOI) links may present some challenges [2]. DOP identifiers that incorporate date and time make it easier to chronologically distinguish an original version from its translated version, as the original version precedes the translated one.

**3. Online and offline versatility.** Journals have operated – and can still operate – without identifiers for their print or online publications [3]. However, DOP identifiers can bridge the gap between digital and print media, ensuring that basic identifying information remains accessible, regardless of publishing format or internet connectivity. Current digital PIDs have real limitations in print formats, as their primary function is to locate online content. As a result, they become ineffective when publications are presented in physical form. DOP identifiers address this gap by inherently containing key identifying information – such as the author, journal, and date of publication – eliminating the need to open publishing links to access this information. This embedded data ensures both accuracy and reliable identification across both online and offline environments.

**4. Alignment with citation styles.** Citation formats often use the author's name, journal's name, publication's title, and date of publication in different orders or styles. DOP links inherently include three of these essential components: the author's name, journal title, and publication date. This configuration ensures consistency with citation formats, reducing errors and ensuring proper attribution while aligning the citation style with publishing links.

**5. Enhanced literature search.** The informative nature of DOP identifier links allows for quick comparisons of publication timelines, enabling readers to easily assess the recency of a publication by simply looking at the date. This saves time during literature searches and helps focus on relevant timeframes. For example, readers can swiftly determine whether a publication is recent or old by reviewing the date in the DOP link, eliminating

the need to download or open files to access this information. This improves the efficiency with which readers can search and locate literature relevant to their interests, whether recent or older.

**6. Potential for a comprehensive database.** DOP identifiers could help form the foundation of a global bibliographic indexation database for scholarly publications, promoting the open and equitable dissemination of scientific information and fostering accessibility for a diverse range of publishers and journals worldwide. A DOP identifier library can be established to index and retrieve the bibliographies of scientific literature from publishers and journals around the world, all in one place. A DOP hub could be inclusive by providing access to full-text articles when available, and, when not, offering a summary with at least the minimum citation information.

**7. Ease of implementation.** Developing a DOP identifier system can be relatively straightforward, potentially achieved through plugins or programming code that compiles the four variables – the author's name, journal title, date and time of publication – into resolvable links, much like how other digital identifiers function. By automating this process, DOP identifiers could ensure consistency and accuracy across various platforms, simplifying the creation and use of these links in scholarly contexts.

Finally, the implementation of the DOP identification system could form part of a broader strategy to offer diverse solutions that address the varied needs of publishers, journals, and scientific communities. An informative, versatile, and user-friendly method for identifying scholarly works such as DOP identifier could enhance the functionality of academic databases and bibliographic indexes, while improving user experience and supporting more efficient literature searching and citation management.

## Limitations and challenges of dop links

**1. Variable date and time formats.** The diversity of date and time formats across different time zones may present a challenge in standardizing DOP links. However, this variation can be easily addressed by:

- implementing a consistent format or using a standardized time reference, such as the Coordinated Universal Time (UTC). This could be achieved by incorporating the UTC format as a pre-



fix or suffix, similar to the DOI's "10.12345" used as a constant prefix among different publishers and journals;

- using three-letter abbreviations for the months (e.g., Jan., Feb., Mar.);
- using letters for the date of publication (Y for year, M for month, D for day);
- using a 24-hour format for the time of publication (hh for hour, mm for minutes, ss for seconds) to avoid the use and confusion of AM/PM.

Example:

DOP: AuthorA/JournalJ/Y2025M12D31/  
hh11mm15ss45,

where AuthorA is the author; JournalJ is the publishing journal; 2025 is the year of publishing; 12 is December (month); 31 is the day of the month; hh11mm15ss45 is the time of publication in 24-hour format (11:15:45 AM).

## 2. Changes in journal and author's names.

Journal and author names may change over time, but such changes should not impact DOP identification links. The links should refer to the content and its location at the time of publication, serving as authentic snapshots. Any changes should be announced on journal websites, and DOP links should resolve to new locations as needed.

**3. Names and special characters.** The use of "author's last name" may not apply universally due to some cultural differences or nuances in name structures. However, the practice of using an author's last name or family name in bibliographic references is almost the rule in scientific literature and it should not be considered culturally insensitive when used for identification purposes in DOP links.

Certain names and languages may also include special or non-Latin characters, which could affect DOP standardization. However, modern web technologies, including internationalization, localization, and UTF (Universal Character Set Transformation Format), have largely resolved issues with special characters and languages. Publishers can simply copy names with special characters directly from manuscripts or submission forms into the DOP identification links to avoid any typo or errors.

**4. Cost and affordability.** Creating a new DOP identification system requires financial investment, programming expertise, and marketing efforts, just like any other product or service. However, the straightforward nature of the DOP

system could help keep development costs manageable and efficient. A collaborative approach involving funders, publishers, libraries, developers, and open science communities could lead to a robust, free or cost-effective solution. Developing the DOP identification system as a non-profit, open project – by and for the scientific community – would help avoid financial conflicts of interest and promote transparency and accessibility.

Despite the minor challenges outlined above, the DOP system offers notable advantages in terms of informativeness and utility. An open and transparent identification framework has the potential to enhance clarity and accessibility in scholarly identification, ultimately serving the scientific community more effectively than existing systems.

## Conclusion

The DOP identification system described here offers numerous advantages for identifying scholarly publications, addressing the limitations of current methods. DOP identifier links, which incorporate essential identifying attributes – the author's name, journal title, and publication date and time – provide a clear, human-readable, and citation-compliant identification approach. Unlike opaque symbols or numbers commonly used in other PIDs, DOP links align with core citation goals, increasing clarity and reducing errors. The precise timestamps enable easy comparison between different versions or editions of a publication, establishing a clear record of publication timing – critical for determining priority of discovery and protecting against scope creep. DOP links are versatile, applicable to all written scientific contributions, including textbooks, conference papers, and technical reports, in both print and digital formats. They also facilitate easy archiving and access, without reliance on external locators or proxies. Additionally, DOP identifiers offer the potential for standardization across journals and publishers, creating a consistent system of identification, reducing ambiguity, and providing a more robust, transparent, and user-friendly approach to scholarly identification. A large global indexing database could also be built to aggregate DOP identification links from various publishers and journals, providing access to full-text articles as well as basic indexing and citation information.

### CONFLICT OF INTERESTS

The author declares no conflict of interests. There was no funding for the work.

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