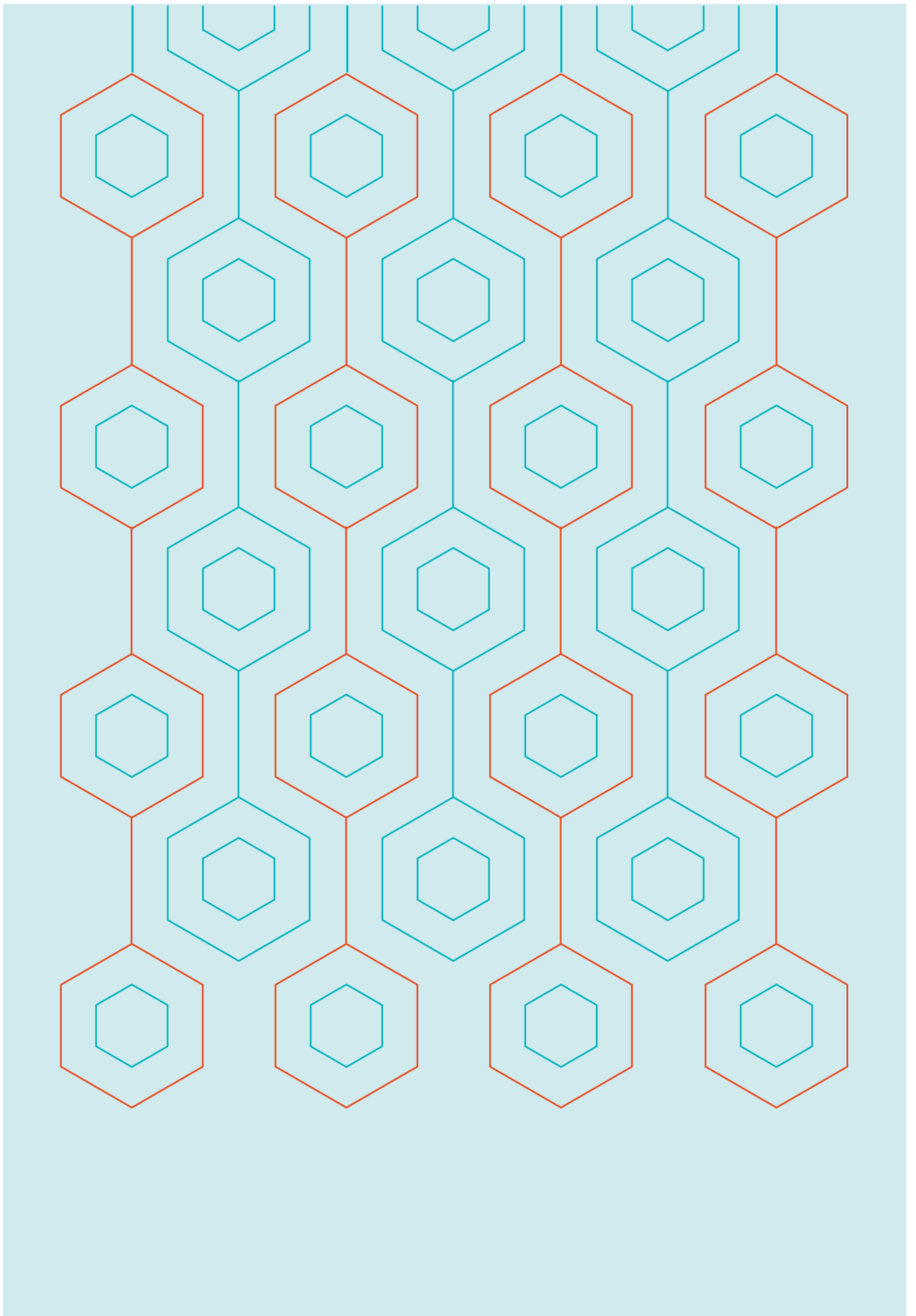


# Activity Report **2019**



Scientific  
Information  
Service



# CONTENT

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**P4  
WELCOME**

---

**P6  
2019 HIGHLIGHTS**

---

**P8  
ARCHIVE**

---

**P10  
INSPIRE**

---

**P12  
LIBRARY**

---

**P14  
OPEN SCIENCE**

---

**P17  
PUBLISHING**

---

**P20  
FACTS & FIGURES**

---

**P21  
OUTLOOK**

---

## WELCOME

Welcome to the first annual Activity Report of the CERN Scientific Information Service.

The CERN Scientific Information Service (SIS) is a group at CERN, currently in the Research and Computing Sector (RCS). Despite regular reorganisations at CERN, in which the structure is changed according to the mandate of each Director General, SIS was formed already during CERN's founding year (1954) and has continued to exist ever since.

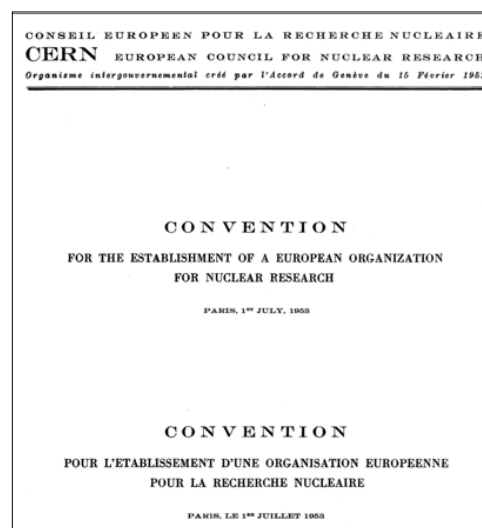
The original mandate of SIS was to serve the growing CERN community with access to scientific literature. This most notably included the creation of a Library. However, over the years, the role of SIS has evolved; new services were launched, some were taken over by other department, while other activities became obsolete with time. Today, our team of librarians, information scientists, physicists, economists, software developers and system engineers provides services for the global scientific community. Our mandate has expanded from providing information primarily for the benefit of the CERN community, to exposing CERN's scientific findings to the entire world and enabling researchers to adopt principles of Open Science. This evolution has been driven by values that were enshrined in the revolutionary CERN founding Convention of 1952.

To reflect our expanded remit and activities, our group adopted a new mission statement:

*“THE CERN SCIENTIFIC INFORMATION SERVICE AIMS AT EFFICIENTLY MANAGING, PRESERVING AND DISSEMINATING SCIENTIFIC INFORMATION TO MAKE IT OPENLY ACCESSIBLE AND REUSABLE TO CERN AND THE WORLDWIDE HIGH-ENERGY PHYSICS COMMUNITY.”*

With this new Activity Report, we aim to showcase the work of SIS, not only for our colleagues at CERN, but for the benefit of the global scholarly communication community. I hope you enjoy the reading of this report

Alexander Kohls



*“The Organization shall have no concern with work for military requirements and the results of its experimental and theoretical work shall be published or otherwise made generally available. The Organization shall... confine its activities to the following... the promotion of contacts between, and the interchange of, scientists; the dissemination of information...”*



Team-building during the SIS Retreat.

## 2019 – A YEAR OF CHANGE FOR SIS

The year 2019 commenced with a number of organisational changes for SIS: Alex Kohls took over the leadership of the Scientific Information Service, with the former head Jens Vigen supporting Alex as Deputy Group Leader.

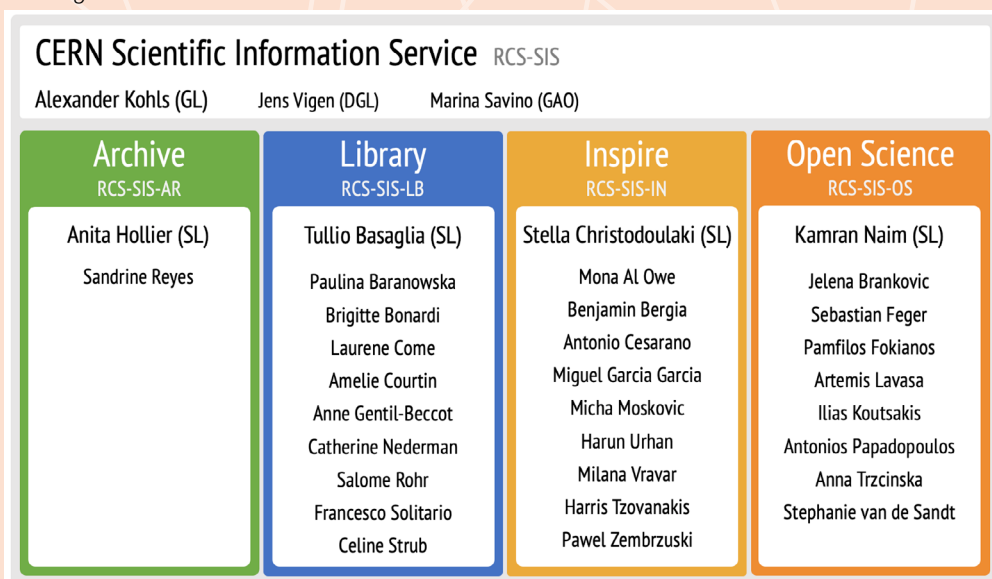
The former Open Access section was split into two teams, with a clearer focus and streamlined reporting. The Inspire section, led by Stella Christodoulaki, took over the responsibility for the development of a new version of the global particle physics platform INSPIRE, as well as the operation of INSPIRE itself and other SIS services such as the SCOAP<sup>3</sup> repository.

The new Open Science section is responsible for the worldwide SCOAP<sup>3</sup> collaboration, CERN's involvement in European initiatives around Persistent Identifiers and Open Science tools and services, most notably CAP – the CERN

Analysis Preservation service. The Open Science section is led by Kamran Naim, who took over the role from Sünje Dallmeier-Tiessen.

The new SIS structure (see below) comes along with a new focus on communication and collaboration across teams. The new leadership team takes all important decisions jointly and encourages a culture of overall accountability for all SIS activities. To further foster this overall commitment to the common goals of CERN's Scientific Information Service, a new SIS Mission Statement was developed by members of the team and presented to the group at its retreat in December. This full-day event of strategic discussion, fun presentations and creative team exercises, represented the conclusion of a transformative year for SIS. The team is now well-positioned for upcoming challenges and new endeavours.

SIS Orgchart as of December 2019



# 2019 HIGHLIGHTS

## SCOAP<sup>3</sup> EXTENSION AND EXPANSION

The Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP<sup>3</sup>) is the largest Open Access initiative in the world and to date has made more than 32 000 articles openly accessible and reusable at no cost for authors. During 2019, the SIS team prepared the extension of the initiative for three more years. At its meeting in May 2019, the SCOAP<sup>3</sup> Governing Council (GC) granted its approval for continuing to support OA publishing in the existing eleven journals in the program, which collectively publish almost 90% of all high-energy physics articles. At its October meeting, the GC further approved an expansion of the SCOAP<sup>3</sup> activities beyond journal publications. During the coming year, a Working Group, coordinated by the SIS team, will implement a scheme that aims to open up a list of important textbooks and monographs relevant to particle physics.



*SCOAP<sup>3</sup> GC Meeting at CERN.*

## CERN OPEN DAYS

CERN Open Days take place every 5-6 years and are a major event for the entire Organization. Of course, SIS participated during the 2019 Open Days that took place on September 14<sup>th</sup> and 15<sup>th</sup> (see <https://opendays.cern>). 75 000 visitors came to CERN over the two days to learn about our organisation, the experiments we undertake and the general scientific concepts and theories of particle physics. The Library, its bookshop and a special stand in CERN's main building were there to welcome visitors from all over the world, to allow them to buy from a wide range of titles from our bookshop's collection.



*Bookshop during Open Days.*

## LAUNCH OF THE NEW INSPIRE BETA

INSPIRE is a trusted community hub that helps researchers to share and find accurate scholarly information in high-energy physics, where more than 50 000 active users from all over the world access almost 1.5 million records including journal articles, preprints, conference proceedings, and much more. Its operation and content curation are done in collaboration with Deutsche Elektronen-Synchrotron (DESY), Fermilab, the Institute for High-Energy Physics (IHEP),

the French National Institute of Nuclear and Particle Physics (IN2P3) and the Stanford Linear Accelerator Center (SLAC). The SIS team has been working on a new version of the platform for several years. In spring 2019, INSPIRE beta was launched to be tested by the worldwide community. Later in the year, the first component of the new INSPIRE suite, INSPIRE Jobs, was launched in production, with the rest to follow early in 2020.



Participants of the CERN-UNESCO School.

## CERN-UNESCO SCHOOL ON DIGITAL LIBRARIES (PART 2) - EVENTS

Following one week of general training in Nairobi, Kenya, in early October 2018, the second part of the CERN-UNESCO School on Digital Libraries took place at CERN in June 2019. This in-depth course saw the participation of four African librarians, who were invited to CERN to complete their training.

The CERN-UNESCO School on Digital Libraries – now in its 5th year – aims at making African research more visible by familiarising librarians with open-access and open-science principles, introducing them to new web technologies and services (such as Invenio) and advising them how to further develop their own digital libraries.

Throughout their two weeks in Geneva, the participants attended conferences at the United Nations, met with advocates for Open Access and created new professional networks. “It was my first time in Europe, and we had the opportunity to meet new people, make connections with

founders and delegates around the world”, says Peter Otuoma, from Kenya, who is a systems librarian at Karatina University.

Most importantly, during this follow-up training, participants had the chance to work hands-on on open-access technologies with CERN experts, which helped them come up with solutions for their own professional challenges. “The solutions for Open Access I discovered here were quite helpful. Now I feel confident I will be able to test my knowledge back in my home institution”, says Timothy Sukya (University of Nairobi).

When asked about what the future had in store, Daniel Mwashivya, from Tanzania, had no doubts he would help spread and share the knowledge learned at CERN: “The role of librarians worldwide is constantly changing. We are no longer just sitting on shelves and this is why we need to familiarise ourselves with digital libraries.”

Winfreda Nalwimba, from Zambia, the only female participant who was able to attend the training at CERN, hopes that by sharing her experience, she can inspire more girls in her home institution.

## OAI11 - EVENTS

### OAI11

The CERN-UNIGE Workshop on Innovations in Scholarly Communication was held at University of Geneva from June 19<sup>th</sup> to 21<sup>st</sup>, 2019. The main theme of the workshop was: “Open Science – its impact and potential as a driver for radical change.” The full programme, including videos from the presentations, is available online on the event page.

This series of workshops, organised bi-annually, gathers some 200 professionals and has established itself as an important forum where scientists, librarians and techies can meet to discuss advances in scholarly communication.



Workshop impressions.



# ARCHIVE

View of the CERN Archive.

***The Archive is a repository for historical records about all aspects of CERN's activities, from its creation until the present day. The CERN Archive is the shared memory of the organization; it is the primary source for information on our history, and supports current knowledge and decision making.***

***It contains letters, memos, drafts, reports, notes and other documents created or received in the course of CERN's work and selected for their long-term historical value. It also houses a collection of correspondence, manuscripts, books, reprints and photographs by Wolfgang Pauli (Nobel Laureate, 1945).***

***Users of the Archive come from many backgrounds, within and outside CERN. Our mission is to select and obtain records of long-term historical interest; to keep the records safe (protecting their 'physical and moral integrity' by respecting archival principles and good practice); and to make the records available.***

<http://library.cern/archives>

## CONSERVATION OF HISTORIC RECORDS

The physical organisation of the Archive storage space was overhauled in 2019 to improve storage conditions, save space and improve cataloguing. Collection organisation was rationalised and two projects were launched to protect vulnerable records and improve our finding aids. Uncatalogued documents, particularly material that entered the Archive decades ago with insufficient supporting information, were examined and preliminary appraisal and description was carried out to facilitate their cataloguing. The contents of 600 files belonging to CERN's earliest Director-Generals were transferred from their original binders and repackaged appropriately in non-damaging materials.





Archive documents at the Quantica exhibition.

## VISITING RESEARCHERS

In addition to enquiries received by phone or e-mail, the CERN Archive regularly welcomes external researchers who want to carry out their own research using the archival records. Many of these are physicists or historians of science, but also include some of CERN's artists in residence. We have supported the residency project since its outset, and in 2019 provided archive visits and follow-up resources for around a dozen artists. Archive documents were also loaned for display at the Quantica exhibition in Barcelona, which showcased the arts@CERN initiative.

## AUDIO-VISUAL ARCHIVES

The Archive supports and collaborates with other CERN initiatives, including the Digital Memory Project. In 2019, this included preparation of around 600 audio tapes and 40 boxes of videos to be sent for off-site digitisation, and their reintegration back into the Archive on their return.

## CERN HERITAGE COMMITTEE

The first meeting of the CERN Heritage Committee took place on May 10<sup>th</sup>, 2019. It is an advisory body reporting to the Director General through its Chair, the Director for International Relations, and ex-officio members include the archivist and others at CERN responsible for history-related resources and projects. The Committee oversees all aspects of the preservation of CERN's heritage and its use in education, communications and outreach. One important issue will concern the possible continuation of work begun at the History Workshop, held at CERN in February 2018 with the idea of relaunching a CERN History Project.

## WEB ARCHIVING

A new service provider was needed in 2019 to ensure continuation of the regular in-depth crawls of CERN's public web pages that have been carried out for over a decade to supplement standard harvesting performed by the Internet Archive. Following a call for tender, a collaboration agreement was set up with the Internet Archive to make three crawls per year. The first crawl in June captured 524 GB of new data. The pages are publicly available on the Internet Archive's Wayback Machine, linked from the CERN Archive's web pages.

[http://web.archive.org/web/\\*/http://www.cern.ch](http://web.archive.org/web/*/http://www.cern.ch)



# INSPIRE

**INSPIRE is a trusted community hub that helps researchers to share and find accurate scholarly information in high-energy physics. The INSPIRE section manages the development, maintenance and operation of the INSPIRE and SCOAP<sup>3</sup> repositories, as well as the operation of HEPData.**

**The team is composed by a diversity of profiles, a product manager, content experts, system engineers, and software developers. The team is working under the Agile Scrum framework and delivers new increments of work every 2 weeks.**

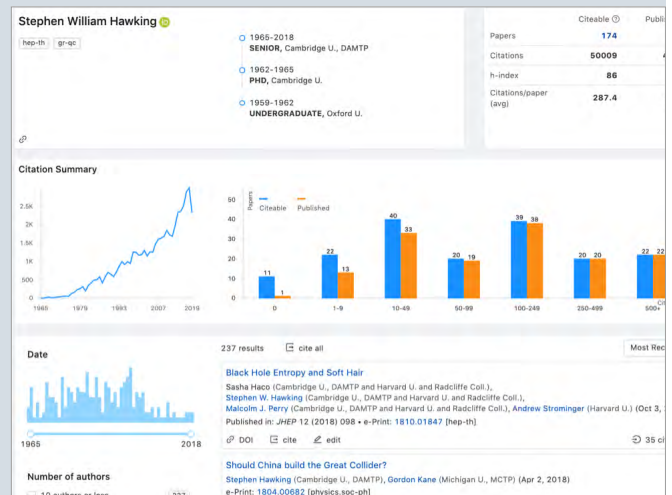
<https://inspirehep.net>



## LAUNCH OF THE NEW INSPIRE BETA

INSPIRE serves as a one-stop information platform for the high-energy physics community, comprising 8 interlinked databases on literature, conferences, institutions, journals, researchers, experiments, jobs and data. Run in collaboration by CERN, DESY, Fermilab, IHEP, IN2P3, and SLAC, it has served the scientific community for almost 50 years. Previously known as SPIRES, it was the first website outside Europe and the first database on the web. Close interaction with the user community and with other services such as arXiv, ADS, ORCID, as well as with publishers is the backbone of INSPIRE's evolution.

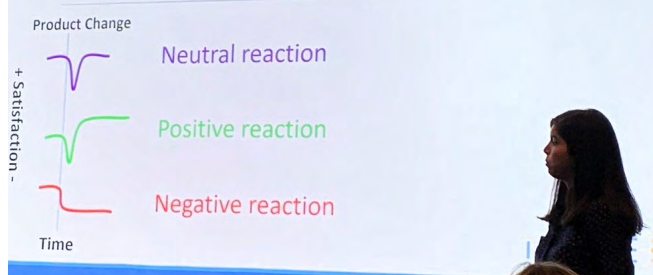
In February 2019, the INSPIRE team released a beta version of the new INSPIRE platform. Built on top of a modern and reliable software architecture, INSPIRE beta aims at optimizing existing features while introducing new user-centric functionality to the platform. Its modern, scalable and robust framework provides a solid foundation for fast services, intuitive search and comprehensive author profiles. The high-energy physics community's feedback has always been central to shaping and improving INSPIRE.

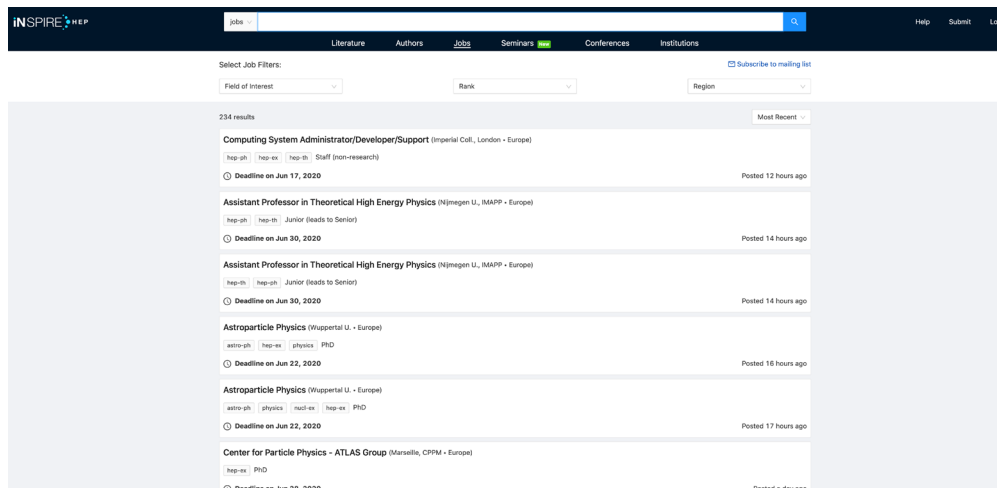


Throughout 2019, INSPIRE beta ran in parallel to INSPIRE, collecting user feedback and usage statistics. We followed the approach of building a Minimum Viable Product (MVP), providing just enough features to satisfy early users and to provide feedback for future software development. Following 26 user interviews and 360 user responses to community-wide surveys, we tested INSPIRE beta with the HEP community and reached consensus on essential features for development.

INSPIRE beta was presented at the 24th International Conference for Computing in High Energy and Nuclear Physics (CHEP) in Adelaide, Australia.

## Change aversion is unavoidable





## INSPIRE JOBS RELEASE

In June 2019, the new INSPIRE Jobs was released under the beta version. Following a 3-month testing period and feedback from 40 users, in September 2019, INSPIRE Jobs became the first component of the new version that replaced the old Jobs platform. The feedback from the community and the partners has been extremely positive: the new workflow reduced 60% of the curation work and it gets more than 1 000 visits per day.

## INSPIRE WEEK

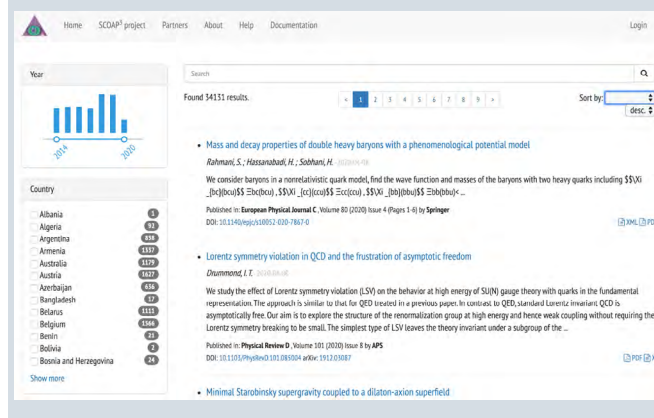
In March 2019, SIS organized a 1-week conference, where INSPIRE partners from different laboratories visited CERN to discuss INSPIRE's release strategy and operational matters. Topics included defining INSPIRE's mission and vision and reaching consensus on the roadmap for releasing the new INSPIRE.

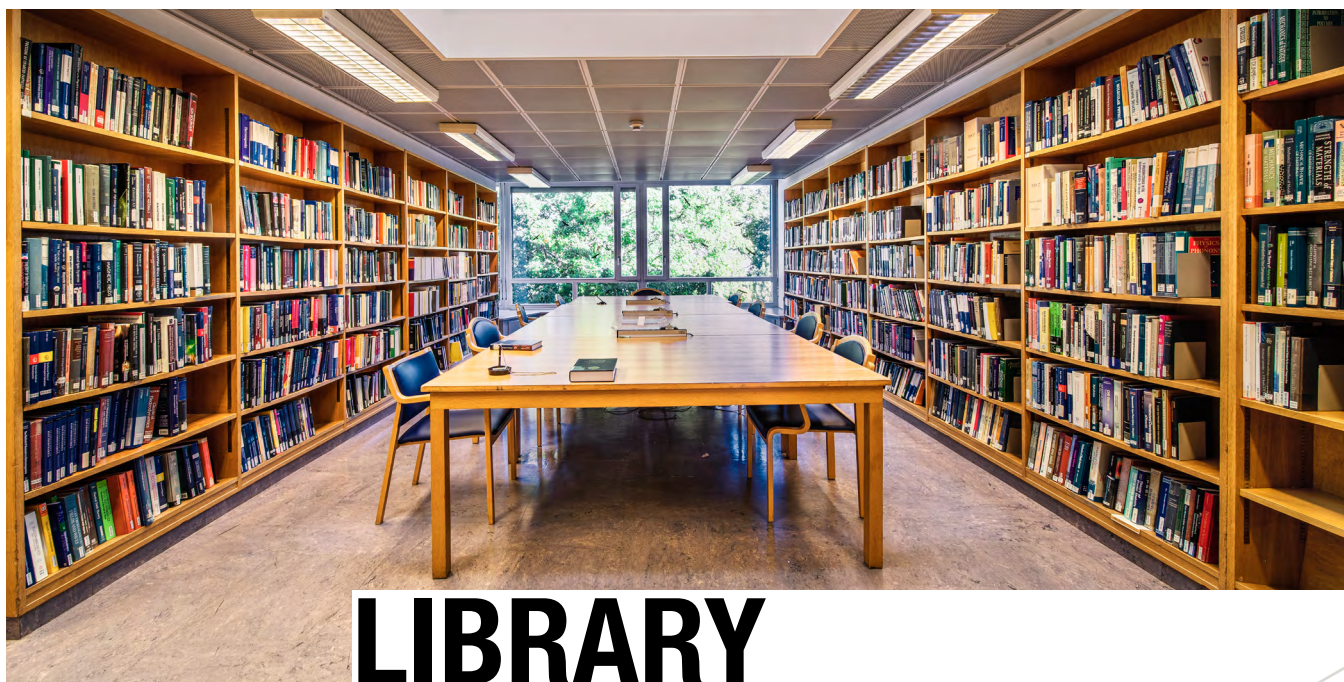
## INSPIRE ADVISORY BOARD MEETINGS

The INSPIRE Advisory Board consists of nine experimental and theoretical physicists from participating laboratories and the community at large, plus the manager of INSPIRE's sister service NASA Astrophysics Data System. Representing the HEP community, the INSPIRE Advisory Board provides advice on the INSPIRE strategy and feedback for software development. In 2019, John Beacom was appointed as new chair of the Advisory Board, which met with the INSPIRE governance team three times to discuss the INSPIRE beta deliverables.

## MIGRATION OF THE SCOAP<sup>3</sup> REPOSITORY

The SCOAP<sup>3</sup> Collaboration maintains its own repository, which serves as a staging area for the 3,000+ partners to ingest relevant articles into their respective national or institutional repositories. In addition, the CERN SCOAP<sup>3</sup> team uses the repository for the validation of article compliance and for the calculation of the different national contributions to the collaboration. As such, the SCOAP<sup>3</sup> repository has a very specific use case, different from other repositories maintained by SIS. Following the dedicated effort of the last few years, the SCOAP<sup>3</sup> repository was migrated to its new version in 2019. Based on Invenio v3, this version offers new and improved functionality and additional features at <https://repo.scoap3.org/>.





# LIBRARY

CERN Library Reading Room.

***The function of a library in a research-intensive institution like CERN is twofold: it should support human inquiry by providing and managing access to information that is vital to discover new knowledge, and it should showcase CERN's scientific output for the benefit of our stakeholders and of the society at large.***

***In our effort to adhere to the values of good service to our community and to the principle of free access to knowledge created using public funds, we closely cooperate with the INSPIRE and Open Science sections of SIS. In particular the collaboration with INSPIRE is at the core of our activity as provider of bibliographic information.***

<http://library.cern>

## CERN OPEN DAYS: THE BOOKSHOP WAS THERE

The Bookshop was present during the CERN Open Days on September 14<sup>th</sup> and 15<sup>th</sup>. Several authors attended and presented their books, including Gautier Depambour, Pauline Gagnon, and the comic-strip artist Fiami. The Bookshop presence was met with great success.

In Gautier Depambour's words, "The main concept of his book, *Une Journée au CERN: Visite Guidée au Coeur de la Physique des Particules*, is to take the reader to a one-day visit inside CERN as if he was directly next to me. [...] The aim is to include scientific and technical explanations in a more general visit which is the occasion for the reader to discover CERN from the inside and the day-to-day life in particle physics."

***Who Cares About Particle Physics* by Pauline Gagnon raised strong interest during CERN Open Days**

This book explains not only particle physics and the current ongoing research at CERN, but also how fundamental



*Our Team at the Open Days.*

research is done by large international collaborations of scientists, and how this work contributes to improving our lives.

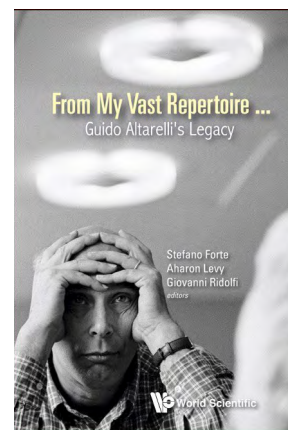
Particularly interesting are the chapters concerning the peculiar characteristics of the management of big experimental collaborations, as well as social aspects, such as diversity in particle physics.

## BOOK PRESENTATIONS AT THE CERN LIBRARY

On April 16<sup>th</sup>, the cartoonist Raphael Fiammingo, also known as Fiami, performed a well-attended book-signing session, where he presented, among others, the book *Les Vies de Newton*, one in a very successful series of biographies of famous scientists in the form of comic books.

Other notable events included:

- Stefano Forte presented “From my Vast Repertoire: Guido Altarelli’s Legacy”: A collection of contributions by his friends and collaborators, to remember one of the leading figures of 20th century articles physics.
- Edward Sarkisyan-Grinbaum presented the new journal published by MDPI: “Physics”.
- Ugo Amaldi presented the book “CERN and the Higgs boson”, by James Gillies and its Italian translation, “Il CERN e il bosone di Higgs”.



## LIBRARY TO GET A NEW SKIN

The CERN Library opened its doors in the present premises in 1957. Over the years, it underwent partial transformations but was never fundamentally renovated. The time has now come for a general modernization of its infrastructure and furniture.

A survey was run in the summer by a stagiaire of the Haute Ecole de Gestion Geneva, Stéphanie Hekimian. Its purpose was twofold: giving Library users the opportunity to propose a new space organization of the Library, and to receive suggestions concerning furniture, lighting and power supply. The survey was complemented by interviews with Library staff and users.

This work provided useful input to inform an upcoming project to redesign of the Library reading areas foreseen for 2020. Some of the suggestions from the survey include installation of more electric outlets, replacing the big tables with smaller ones, and the installation of lockers.

## LIBRARY SCIENCE TALKS

The Library Science Talks (LST) are a series of conferences given by prestigious experts in the areas of Information and Library Science and Archives, and are co-organised by CERN, the Zentralbibliothek Zurich and AILIS, the Association of International Librarians and Information Specialists.

Gildas Illien gave the talk “From Demat to Remat: designing the post-digital library”. His team of the Library of the French Natural History Museum in Paris has invested in electronic documentation and the digitization of its holdings in order to match researchers’ expectations and keep up with digitization of scientific publications. The Library team successfully engaged with totally new audiences by experimenting with new electronic documentation processes.

The second LST outlined new ways of integrating libraries into research processes. Gerhard Lauer (Basel University) talked about “Data, models and libraries. Reflections on the role of libraries in the age of data-intensive science”.

## PROFESSIONAL VISITS

SIS aims at strengthening links with Swiss and French institutions that train the next generation of Information Science professionals. Joint events offer the possibility to showcase our achievements and to get in touch with potentially interesting internship candidates.

In May, master students of the the University Claude Bernard Lyon 1 visited the Library and attended a series of presentations about the SIS activities and projects.

Bibliosuisse, the Association of Swiss Libraries, organizes yearly professional visit to innovative libraries and documentation centers. In 2019, their choice fell on CERN's Scientific Information Service. In September, we welcomed a group of Swiss librarians. Discussion topics touched upon Open Data, ebooks collection development and the management of scientific publications.

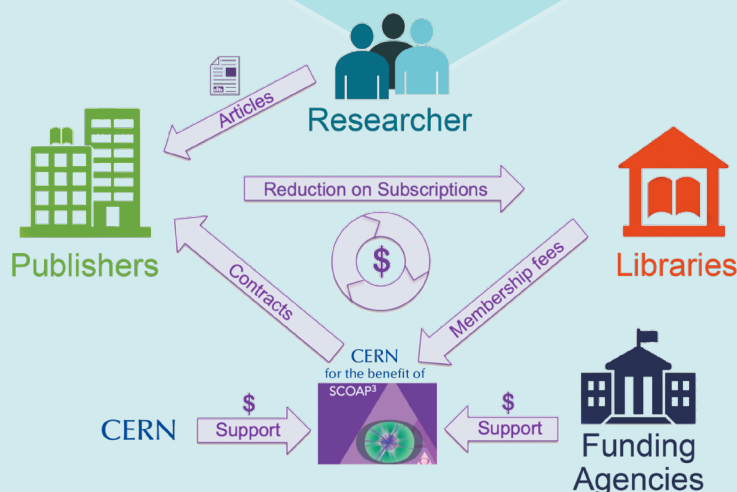
# OPEN SCIENCE

*The Open Science section works to promote the discovery of research outputs, preservation of experimental analyses, and interconnected research infrastructures in high-energy physics (HEP). This is currently achieved through three major initiatives: the Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP<sup>3</sup>)—a global collaboration of 3000 libraries across 46 countries, funders and intergovernmental organizations—which supports the Open Access (OA) publishing of HEP research in leading journals; CERN Analysis Preservation (CAP), an online repository and collaboration platform that allows research teams at CERN to capture experimental analyses and associated data to ensure their reusability and reproducibility; and FREYA, a 3-year collaborative project funded by the European Commission under the Horizon 2020 program that is working towards building a robust environment for Persistent Identifiers (PIDs) as a core component of European and global research e-infrastructures. The section serves functions that are both technical and strategic, working to ensure that CERN remains at the forefront of the global Open Science movement by fostering an ecosystem of interoperable services and enabling policies.*

## SPONSORING CONSORTIUM FOR OPEN ACCESS PUBLISHING IN PARTICLE PHYSICS (SCOAP<sup>3</sup>)

The end of 2019 marked the conclusion of the second 3-year Phase of the SCOAP<sup>3</sup> collaboration, through which partner organizations from around the world collectively redirect the funds previously used to pay subscriptions into a common pool to fund the transition of eleven key HEP journals to OA at no cost to authors. During this phase 18 172 articles were published OA, at an average cost per article of 1100 Euros—far below market standard prices for publisher Article Processing Charges (APCs)—and bringing the total number of articles published OA by SCOAP<sup>3</sup> since the project's inception to over 32 000. Copies of all articles published OA by SCOAP<sup>3</sup> are also made available through the SCOAP<sup>3</sup> repository, which was migrated to a new version in 2019, with substantially improved functionality for all users.

During its meeting in May 2019, the SCOAP<sup>3</sup> Governing Council—the central governance organization of the SCOAP<sup>3</sup> collaboration—approved the extension of the program for another 3-year phase, from January 1st, 2020 through to December 31st, 2022. As well as continuing to support OA to the eleven journals currently participating in the program and negotiating suitable arrangements for this Phase with participating publishers, the consortium approved an expansion of the content offering of SCOAP<sup>3</sup> at the October meeting of the Governing Council, and established the Open Books Working Group to devise and implement a strategy to transition the most important text books and monographs relevant to high energy physics and related disciplines to Open Access for to ease the studying of physics students worldwide.



<https://scoap3.org>

## PROJECT FREYA

FREYA is a 3-year EU-funded Horizon 2020 project that aims to build the infrastructure for persistent identifiers (PIDs) as a core component of Open Science, and especially the European Open Science Cloud (EOSC). The work of FREYA will improve discovery, navigation, retrieval, and use of research resources.

### FREYA has three pillars:



The **PID Graph** connects and integrates PID systems



The **PID Forum** promotes engagement with the global community

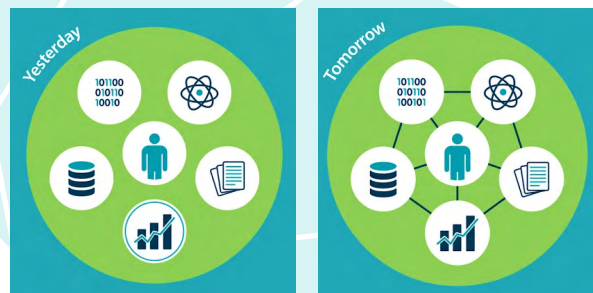


The **PID Commons** addresses the sustainability of the PID infrastructure

Over the past year, FREYA launched the PID Forum, a global discussion space for everything PID-related. The partners developed training materials and organised various training events (40 presentations/ workshops at 31 different events in 15 different countries and 4 webinars), and expanded the FREYA ambassador programme.

FREYA increased its engagement with the various EOSC projects: EOSC-hub, OpenAIRE, FAIRsFAIR, RDA Europe 4.0, and EOSC Secretariat. FREYA also contributed to the initial scoping and draft for the EOSC PID Policy, provided feedback for the EOSC Federating Core, participated in the EOSC FAIR and Architecture Working Groups, and started the development of a PID services registry that can be integrated with the EOSC service catalogue.

### Connected Persistent Identifier for Open Science

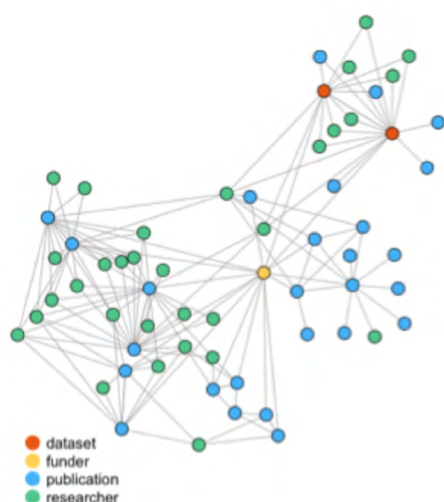


## THE PID GRAPH

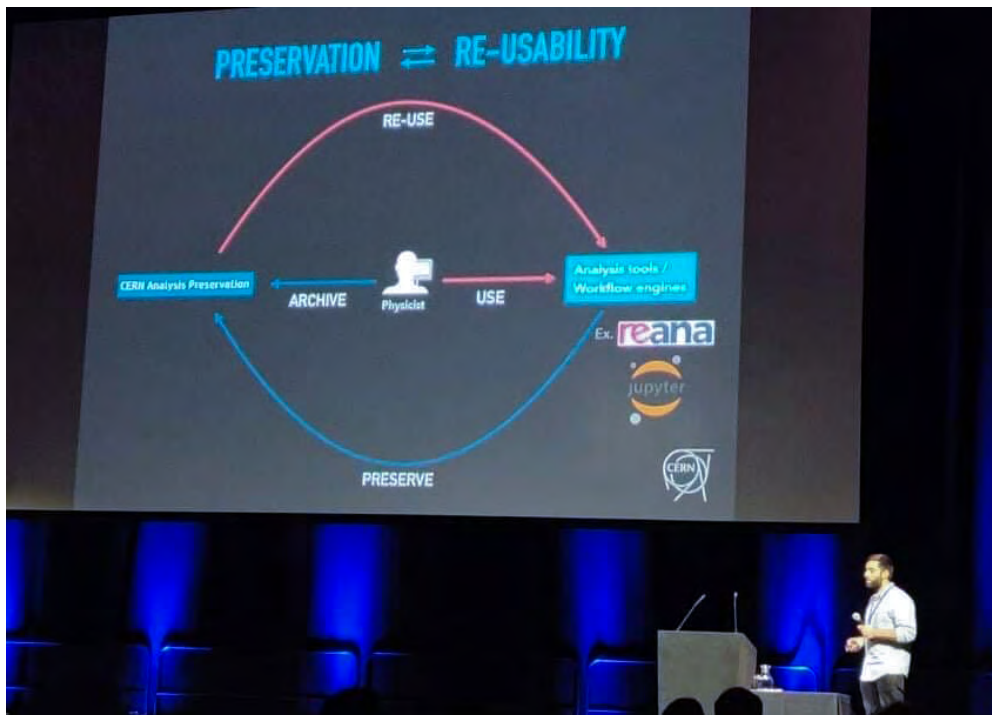
During 2019, the FREYA project partners continued working on prototypes and disciplinary pilot applications, general outreach and liaising with EOSC, as well as making the vision of the PID Graph more concrete. The project's mid-term review took place in June 2019. The review was successful and a number of the instructions and recommendations the project received have already been integrated. All due deliverables were submitted (to be accessed through <https://www.project-freya.eu/en/resources/project-output>).

In 2019 DataCite introduced a GraphQL API to address a variety of PID Graph user stories that were collected by the FREYA partners. The PID Graph is a network of interconnected PID systems, as a basis for a wide range of services. The PID graph can link PIDs together via relations in their metadata to enable the discovery of connections at least two “hops” away. FREYA builds on the expertise and close collaboration with the Research Graph team and adopts the outputs of the Research Data Alliance DDRI Working Group to transform PID connections into an improved graph of research objects.

The FREYA pilot applications developed by the various disciplinary partners continued being improved and enhanced with new functionalities (e.g. enhanced provenance for PID metadata and digital objects). In 2019, the partners carried out a thorough assessment of potential new PID types and began iteratively integrating new PID types in production systems (e.g. organisation IDs, grant IDs, etc.).



<https://project-freya.eu>



CAP presentation at CHEP 2019.

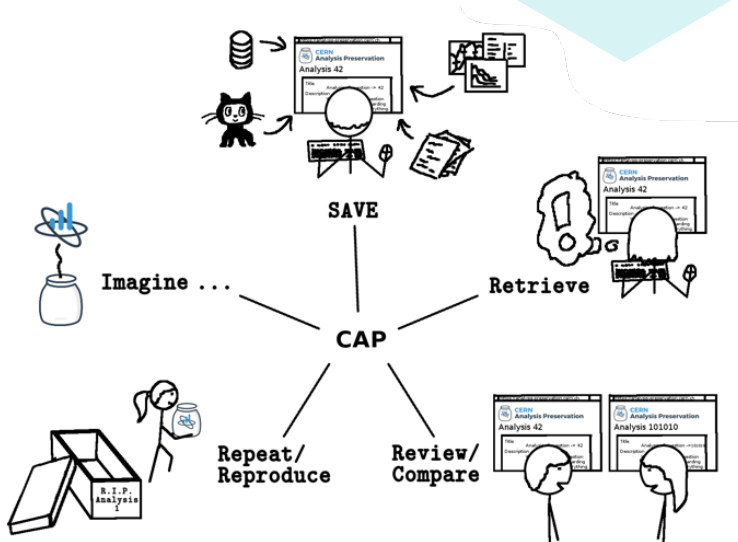
## CERN ANALYSIS PRESERVATION

CERN Analysis Preservation (CAP) has been built as a comprehensive solution for the preservation and description of experimental analysis assets, and is fully interoperable with, and performs a critical function for, the Open Science ecosystem at CERN (together with CERN IT projects such as the CERN Open Data Portal and REANA).

During 2019, the CAP team worked to develop the service in close collaboration with LHC experiments. Through pilot deployments of the service, the CAP team developed functionality to enable the capturing of analysis related metadata, preservation of analysis components, and extensive collaboration across LHC research teams. These pilots ensured that the platform was designed to reflect the culture and needs of researchers within the LHC

experiments, consequently enabling them to more readily adopt best practices for research data management and preservation.

Through this process, the CAP service was brought to a fully-functioning beta version which was presented in November 2019 at the 24<sup>th</sup> International Conference for Computing in High Energy and Nuclear Physics (CHEP) in Adelaide, Australia. Following the presentation, and in ongoing consultation with the LHC experiments, the CAP team has continued to develop both the front and back-end, deliver additional services, and prepared comprehensive documentation to support the CERN-wide launch of the portal in 2020.



<https://analysispreservation.cern.ch>

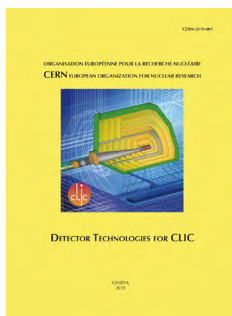


# PUBLISHING

**SIS supports the production of a wide range of publications at CERN. This includes the full end-to-end publishing process for the CERN Reports (often referred to as Yellow Reports), but also advice and hands-on support for CERN authors to publish Open Access in journals not covered by SCOAP<sup>3</sup>.**

## CERN REPORTS PUBLISHED

Following an intensive and dedicated effort early in the year, a backlog of publications from 2018 was cleared, and seven Yellow Reports were published in 2019.



### Detector technologies for CLIC

Dannheim, D. ; Krüger, K. (ed.); Levy, A. (ed.); Nürnberg, A. (ed.); Sicking, E. (ed.)

The Compact Linear Collider (CLIC) is a high-energy high-luminosity linear electron-positron collider under development [...]

CERN Yellow Reports: Monographs; 1/2019 ([10.23731/CYRM-2019-001](https://doi.org/10.23731/CYRM-2019-001))

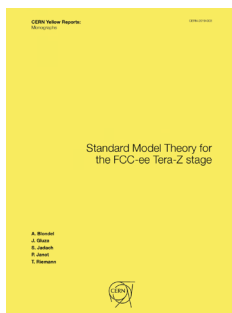


### A facility for tumour therapy and biomedical research in South-Eastern Europe

Amaldi, U

In 2016 the South East European International Institute for Sustainable Technologies (SEEIIST) was proposed by Herwig Schopper and brought to the political level by Sanja Damjanovic, Minister of Science of Montenegro [...]

CERN Yellow Reports: Monographs; 2/2019 ([10.23731/CYRM-2019-002](https://doi.org/10.23731/CYRM-2019-002))

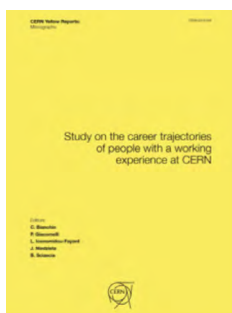


### Standard model theory for the FCC-ee Tera-Z stage : report on the Mini Workshop Precision EW and QCD Calculations for the FCC Studies : Methods and Tools, 12–13 January 2018, CERN, Geneva

Blondel, A.

The future 100-km circular collider FCC at CERN is planned to operate in one of its modes as an electron-positron FCC-ee machine [...]

CERN Yellow Reports: Monographs; 3/2019 ([10.23731/CYRM-2019-003](https://doi.org/10.23731/CYRM-2019-003))



### Study on the career trajectories of people with a working experience at CERN

Bianchin, C.

This document describes the results of a study, aiming to measure the impact of CERN and of its environment on the career of people who worked at the laboratory [...]

CERN Yellow Reports: Monographs; 4/2019 ([10.23731/CYRM-2019-004](https://doi.org/10.23731/CYRM-2019-004))



### History of the European Muon Collaboration (EMC)

Sloan, Terry

The European Muon Collaboration (EMC), formed in the years 1972–1974, was one of the first large experimental particle physics collaborations with more than 100 physicists [...] CERN Yellow Reports: Monographs; 5/2019 ([10.23731/CYRM-2019-005](https://doi.org/10.23731/CYRM-2019-005))



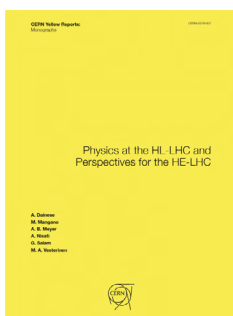
### The 2018 European School of High-Energy Physics - ESHEP2018

20 Jun - 3 Jul 2018 - Maratea, Italy

Mulders, M. (ed.); Duhr, C. (ed.)

The European School of High-Energy Physics is intended to give young physicists an introduction to the theoretical aspects of recent advances in elementary particle physics. These proceedings contain lecture notes [...]

CERN Yellow Reports: School Proceedings; 6/2019 ([10.23730/CYRSP-2019-006](https://doi.org/10.23730/CYRSP-2019-006))



### Report on the Physics at the HL-LHC, and Perspectives for the HE-LHC

Dainese, Andrea (ed.); Mangano, Michelangelo (ed.); Meyer, Andreas B (ed.); Nisati, Alessandro (ed.); Salam, Gavin (ed.); Vesterinen, Mika Anton (ed.)

This report comprises the outcome of 5 working groups that have studied the physics potential of the high-luminosity LHC (HL-LHC) and the perspectives for a possible future high-energy LHC (HE-LHC). The working groups covered a broad range of topics: Standard Model measurements, studies [...]

CERN Yellow Reports: Monographs; 7/2019 ([10.23731/CYRM-2019-007](https://doi.org/10.23731/CYRM-2019-007))

## CERN REPORT SURVEY

To ensure that CERN Reports continue to fulfil their purpose, it was decided to run a survey addressing editors, authors and readers. The survey was run after the summer holiday and presented to the Scientific Information Policy Board (SIPB) at its meeting in October. 177 CERN colleagues replied to the survey.

The results confirmed that many colleagues are emotionally attached to the CERN Reports. Currently between seven and ten reports are published per year—there should potentially be a larger number of titles that could be submitted for consideration. Editors and authors are in general satisfied with the publishing service.

Readers find it of high importance that all cited references are generally accessible. Citations to restricted material, i.e. documents stored in internal repositories such as EDMS, should not be accepted. Survey respondents considered printing to be less important, and recommended that it should be discontinued for environmental protection and

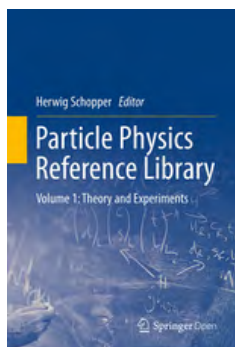
budget reasons. However, for nearly all reports published in 2019, the editorial teams have requested print runs—for which the service has not provided funds, but supported technically.

An important part of the CERN Reports is that they carry material that is difficult to publish in the conventional literature, but is still considered very important by the particle and accelerator physics community. There are split views on peer-review; some editors claim it is hard to recruit authors as long as the reports are not indexed in Web of Science or Scopus, while others find peer-review less relevant for CERN Reports. Towards the end of the year, the School Proceedings were accepted for indexation in Scopus.

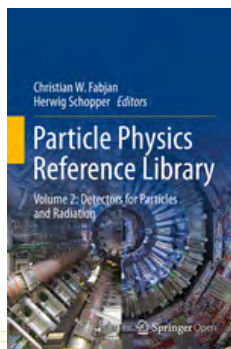
Following the presentation of the survey results, the SIPB decided to initiate a review of the current business model for the publishing of Yellow Reports and to explore alternative scenarios.

## OTHER IMPORTANT PUBLICATIONS SUPPORTED BY SIS

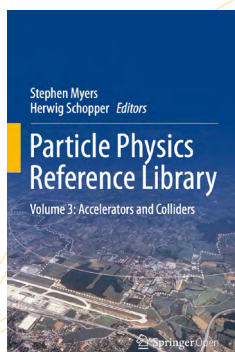
During the period the service also supported authors to negotiate contracts and to prepare manuscripts to be published Open Access by commercial publishers. The projects that required most effort were:



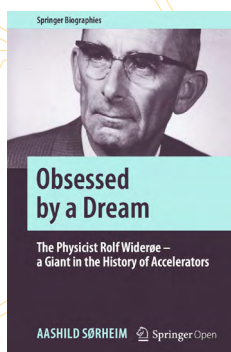
**Particle Physics Reference Library**  
Volume 1: Theory and Experiments  
Schopper, Herwig (Ed.)  
Springer  
To be published in 2020



**Particle Physics Reference Library**  
Volume 2: Detectors for Particles and Radiation  
Fabjan, Christian W., Schopper, Herwig (Eds.)  
Springer  
To be published in 2020



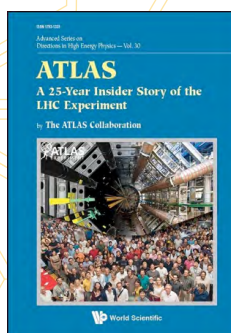
**Particle Physics Reference Library**  
Volume 3: Accelerators and Colliders  
Myers, Stephen, Schopper, Herwig (Eds.)  
Springer  
To be published in 2020



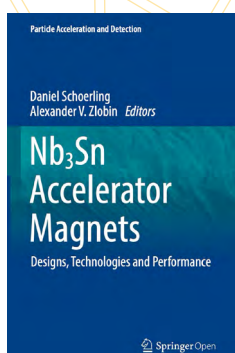
**Besessen von einem Traum : Die Geschichte von Rolf Widerøe**  
German edition in preparation  
Aashild Sørheim  
Springer  
To be published in 2020/21



**FCC conceptual design report**  
FCC Physics Opportunities—FCC-ee: The Lepton Collider—FCC-hh: The Hadron Collider—High-Energy LHC (HE-LHC)  
Springer  
2019



**ATLAS: a 25-year insider story of the LHC experiment**  
The ATLAS Collaboration  
World Scientific  
2019



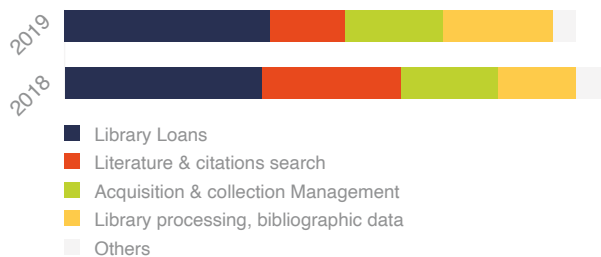
**Nb<sub>3</sub>Sn accelerator magnets**  
Daniel Schoerling and Alexander V. Zlobin  
Springer  
2019

# FACTS & FIGURES

## LIBRARY STATISTICS

Service Now is the CERN central ticketing system for all kind of user requests. The Library has a number of different request types that are handled through Service Now. In 2019, we received again an outstanding user feedback through the ticketing system with 99.9% of users being “satisfied” or “very satisfied”.

### Service-now tickets



## VISITS OF THE LIBRARY READING ROOM

The amount of Library visits varied between ~5500 in the month of December and ~10 000 in July, with a total of ~85 000 throughout 2019. The peak in the number of visits in the month of July can be explained by the presence of the summer students. Overall, the number of Library visits continues to decrease year on year due to the further increasing offering in online books. Only during 2019, we included 11 237 new ebook records, compared with 6886 new ebooks in 2018.

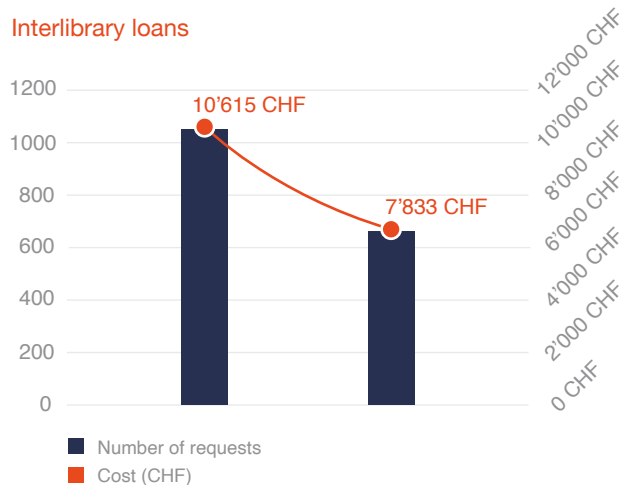
## CERN PUBLICATIONS

CERN authors have published a total of 941 scientific articles in 2019 (and in addition 663 conference proceedings). According to the CERN Open Access policy, CERN authors should aim for publishing Open Access. SIS supports this objective by hosting and operating SCOAP<sup>3</sup> and through numerous individual arrangements with relevant publishers.

Thanks to these initiatives, 80% of scholarly articles from CERN were published Open Access. An additional 9% of these articles were deposited as a preprint in arXiv so that a total of 89% of CERN research articles during 2019 were freely accessible and reusable by researchers worldwide.

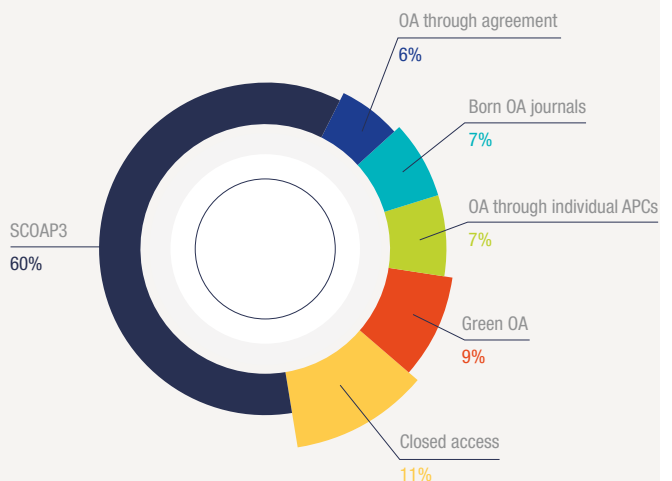
The number of satisfied interlibrary loan requests (borrowed books and article scans) went down from 1085 to 737 in 2019. This largely derives from increased availability of Open Access articles.

### Interlibrary loans



## INSPIRE STATISTICS 2019

- 1.3 million bibliographic records
- 24 million citations captured
- 120 000 author profiles
- 50 000 active users (researchers)
- 19 million individual page views
- 30 000 visitors per day
- 582 000 full text documents indexed
- 50 000 new records ingested per year



# OUTLOOK

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*The first year of the new decade promises to bring several milestones and important events for all SIS team members. This chapter invites you to start thinking ahead with us and discover the key projects for 2020. The next edition of this report will hopefully report on the success of these initiatives.*

## INSPIRE LAUNCH

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In the first few weeks of the year, INSPIRE will launch another component in a new version: INSPIRE Conferences will be the second INSPIRE tool already migrated to the new platform. This database is the most important inventory of HEP conferences worldwide. The new version will not only be more user-friendly but also reduces the curation effort in the process of adding new conference records.

After one year of successful beta-testing, the next INSPIRE user interface will go live at the end of the first quarter. This will represent a significant milestone for the INSPIRE collaboration, who have worked towards this launch for many years. The new INSPIRE combines a modern and adaptive design with many new functionalities for users. It also lays the basis for more interactive and customisable services in the future.

## READ & PUBLISH AGREEMENTS

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CERN has supported Open Access for many years. In fact, the principle of free information sharing dates back to the founding of CERN itself in 1954, as a value enshrined in the CERN Convention. As part of our evolving Open Access strategy, the SIS will initiate a transition of most of our subscription contracts to Read & Publish agreements, which combine the reading access to journal content with the ability to publish in these journals Open Access.

## LIBRARY RENOVATION

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The Library reading room is one of the most frequently visited central places at CERN, but has not undergone any major work since many decades. It is now time to transition the Library into a space that meets the demands of the 21<sup>st</sup> century. With a fresh and modern design and more ecological heating and lighting the library will aim to provide a dedicated space for meetings and collaboration, securing its cherished position at the heart of the CERN campus.

## NEW SIS WEBSITE

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Libraries and other information services are primarily digital these days. While the CERN Library was an early adopter of the new web technologies, the SIS website has not changed in many years. Using the opportunity of a technology upgrade, the website will be entirely redesigned. All information will be structured from a user-oriented perspective, with the objective that all you need is maximum 3 clicks away.

## OPEN DATA POLICY

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To complement our organization's Open Access Policy (in place since 2014) and to further embrace progressiveness at the forefront of open science, the CERN experiments plan to commit to an institutional Open Data Policy. SIS will act as a coordinator and advisor for this activity which aims to announce the new policy in summer 2020.

## CREDITS

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CERN Scientific Information Service  
Esplanade des Particules 1  
P.O. Box  
1211 Geneva 23  
Switzerland  
home.cern

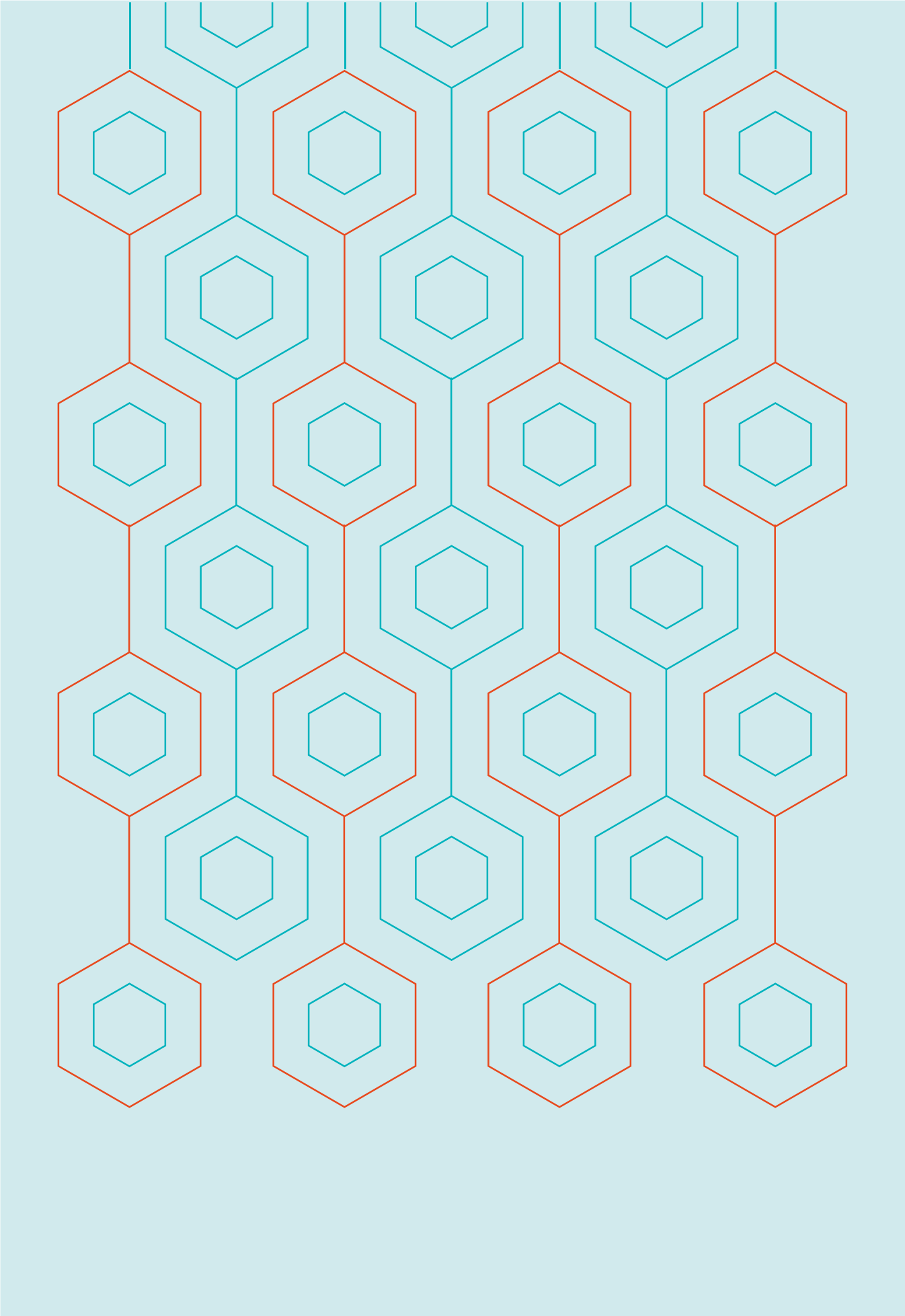
This document should be cited as:  
CERN Scientific Information Service:  
Activity Report 2019.

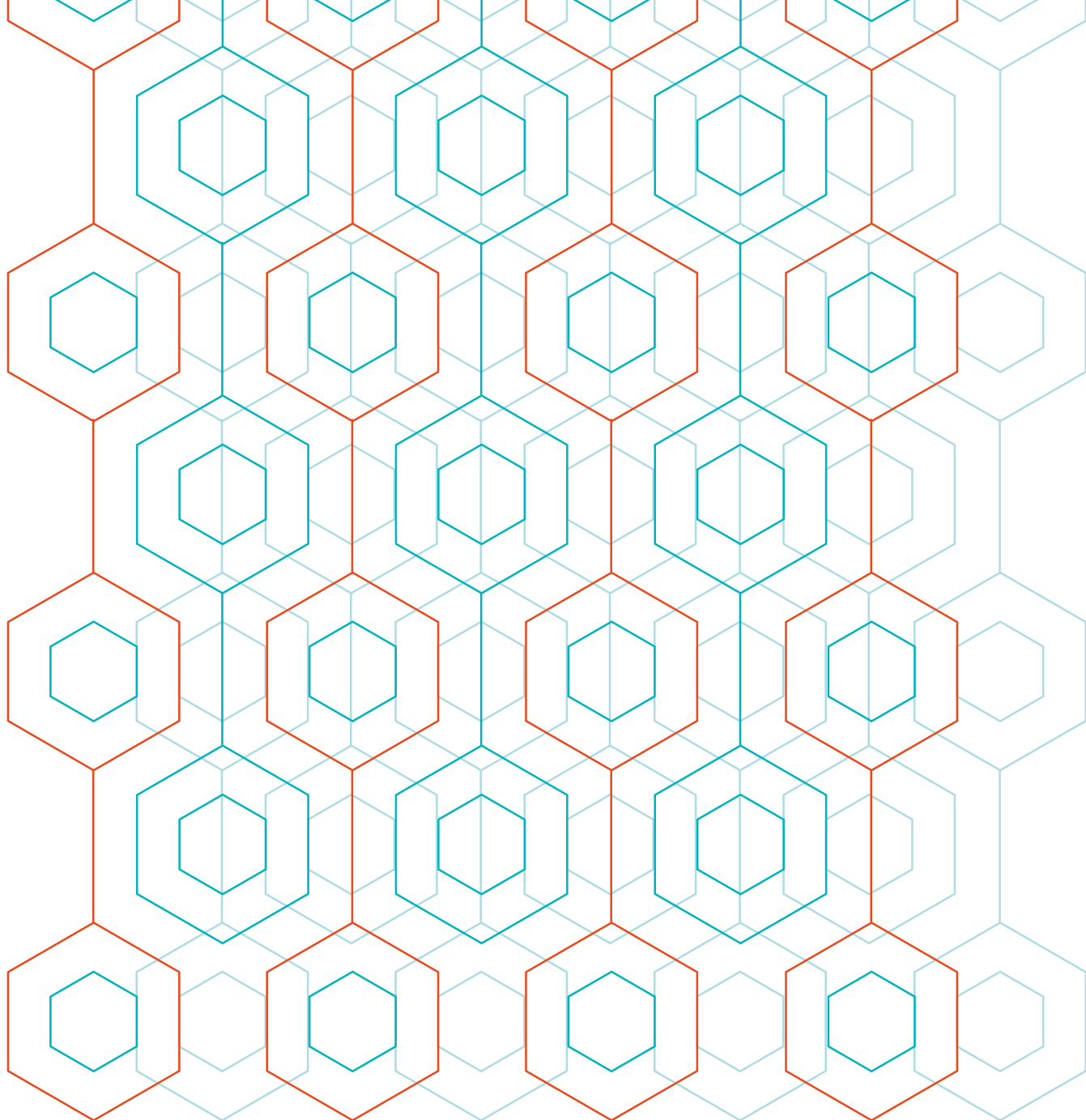
ISBN: 978-92-9083-568-4  
DOI: 10.17181/CERN.no0l.xk0v

### Images:

S. Wolf p. 3, A. Kohls p. 5, p. 6, A. Okerson p. 6 (top), E. Giglia p. 7, A. Hollier p. 9,  
2019 CHEP via Twitter @Computing4HEP p. 10, G. Depambour p. 12,  
SCOAP3 Collaboration p. 14, Project FREYA p. 15, P. Fokianos p. 16  
CERN: all other images

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