

## JACoW: A SERVICE TO THE ACCELERATOR COMMUNITY

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### Introduction

This year, at the first International Particle Accelerator Conference, the IPAC'10 Organizing Committee (OC) “acknowledges the achievement of the JACoW team and thanks all those involved in JACoW for their efforts to further the dissemination of scientific knowledge throughout the accelerator community”.

This echoes and reiterates the recognition expressed by the EPAC and PAC Organizing Committees during EPAC'04 in Lucerne. JACoW an international collaboration in electronic publication of accelerator conference proceedings, through pooling resources, sharing experience, and with a hefty dose of good will, is a perfect demonstration of the internationality of the accelerator field and the importance of close collaboration at all levels.

### FROM TINY ACORNS ...

The citation written by Chris Prior, the Chairman of the EPAC'04 Organizing Committee, also chair of the European Physical Society Accelerator Group (EPS-AG), began as follows:

*“From tiny acorns mighty oak trees grow. An idea from Ilan Ben-Zvi in 1996, nurtured by others, has finally spread its branches as the JACoW collaboration reaches maturity in 2004.*

*The vision of a Joint Accelerator Conferences Website, maintaining a central database of information of all main participants in the accelerator community and holding electronic copies of all the papers published at the conferences under its umbrella, has taken eight years to reach fruition.*

....”

### SOME HISTORY FOR NEWCOMERS ...

In 1995 it was decided to publish EPAC proceedings electronically, and to use the 1995 LEP Performance Workshop as a pilot scheme. At the same time preparations were being made for electronic publication of PAC'95 and EPAC was invited to collaborate in the processing following the Dallas conference.

This PAC'95 experience revealed a very high failure rate in processing, which prompted EPAC to think about establishing a programme of author and editor education. A small team to process contributions during EPAC'96 later developed into today's “core” of experts. Members of that original team that continue to be active within JACoW were Yong Ho Chin (KEK), Martin Comyn (TRIUMF), Leif Liljeby (MSL), Christine Petit-Jean-Genaz and John Poole (CERN). All but Yong Ho were in the IPAC'10 Proceedings Office.

Following the successful publication of EPAC'96 proceedings on the web, Ilan Ben-Zvi, the PAC'99 Program Committee Chair, proposed the creation of a joint EPAC/PAC Website. The organizers of both series agreed to the principle and to give continued support to this collaboration. APAC was subsequently invited to join and JACoW was formally set up after a meeting during PAC'97.

Originally created for the publication of the proceedings of the Asian, European and North American Particle Accelerator Conferences (now on a 3-year cycle forming IPAC), the site today hosts the proceedings of the following JACoW Collaboration conferences: BIW, COOL, CYCLOTRONS, DIPAC, ECRIS, FEL, HIAT, ICALEPCS, ICAP, ICFA ABDW, IPAC, LINAC, NA-PAC, PCaPAC, RuPAC and SRF.

### JACoW, THE WEBSITE

The JACoW site: <http://www.jacow.org> and its logo in Figure 1, are now well known to the accelerator community. Proceedings are available, completely free access and free of charge, via the CERN site, and also via a mirror site at KEK.



Figure 1: The JACoW logo.

Over 100 sets of proceedings have been published since the EPAC'96 proceedings were published on what was to become the JACoW site, including scanned proceedings dating from the pre-electronic era (EPAC, PAC, CYCLOTRONS, SRF, and hopefully others to follow). Today we estimate at half a million the number of papers downloaded each year from the CERN site, many more if one counts those downloaded from the mirror site at KEK.

The JACoW website also carries much useful information for authors and editors concerning the preparation, submission, and production of contributions to proceedings.

### JACoW: A COLLABORATION

Not surprisingly, a fair amount of effort is required before proceedings can be published at the JACoW site. The need to provide a framework resulted in the creation of the JACoW Collaboration composed of a Steering Committee and a Team.

#### *The Steering Committee (SC)*

The JACoW Steering Committee is composed of the past, current and future Chairs of the Scientific

**09 Opening, Closing and Special Presentations**

**04 Prize Presentation**

Programme Committees of each JACoW conference series, plus the JACoW Chair, Deputy Chair, the Secretary and the Regional Support Centre Managers. Responsible for deciding JACoW policy, the SC is the link between the Team and the organizing committees of each conference series. A meeting is organized each year during IPACs.

### *The Team*

The JACoW Team is composed of the past, current and future Editors of each JACoW conference series, plus some co-opted experts. The Team meets towards the end of each year, rotating around Asia, Europe and North America. Figure 2 is a photo taken during the 2008 Team Meeting which took place at KEK. Originally addressing issues related to templates and professional electronic publication techniques, the Team soon turned its attention to developing tools, of which the Scientific Programme Management System (SPMS) is a prime example.



Figure 2: The JACoW Team at the annual meeting at KEK in 2008.

## **SCIENTIFIC PROGRAMME MANAGEMENT SYSTEM (SPMS)**

As successive Team Meetings addressed issues relating to scientific programme management, the need to develop one tool for all JACoW events became evident. Matt Arena (FNAL) volunteered to incorporate EPAC functionality into the tool he had developed for PAC, and the result was the SPMS.

The SPMS is based on an Oracle database. It manages all activities relating to the organization of the scientific programme of conferences, ranging from organization of meetings, abstract submission, scientific programme management, management of processing of contributions, transparencies and presentations, and more recently it has been enhanced with modules dealing with refereeing, registration, and accommodation.

The SPMS is based on two pillars – a central repository of author profiles and institute data and a conference database system to be used by JACoW conferences. The conference systems are independently installed and they connect to the central repository so that authors do not need to enter their information more than once. Figure 3 shows how users can interact either through an instance of the database (the Conference Package for contributions and profiles/affiliations) or directly with the central repository (for profiles and affiliations). The conference repository will only hold the meta-data concerning contributions – the electronic files are uploaded to a separate fileserver.

Contributors are notorious for wanting their particular version of how their own institute name and address appears (there are almost as many ways of writing CERN in English, French and other languages than there are contributors ...) and for this reason changes to the way affiliation data are entered has to be checked and accepted

by the JACoW administrator. This ensures that the data are coherent and that author lists can be sorted correctly grouping people from institutes correctly. The way in which a conference uses a copy of the repository raises some consistency problems – if a change is made in one location, how is it replicated in the other? The solution adopted has been to automatically update profile data in the central repository when a user introduces a change via a conference database. Changes in the central repository are introduced in the conference copy through a scheduled synchronization job, running at the conference installation.

The interface to the SPMS is web-based for both users and administrators and all of the code is stored in the database itself. The databases are customized through a set of parameters that are stored in the database and accessed through the web interface. A conference wishing to use the system downloads the system and only has to

run an installation script to set up an instance. The tuning is then done using the administrator interface.

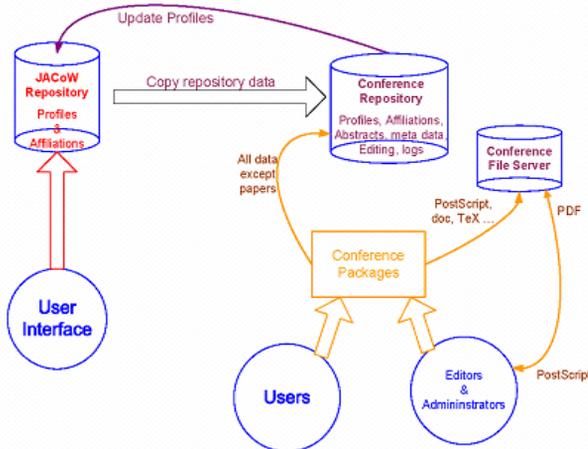


Figure 3: Overview of the Scientific Programme Management System.

## EDUCATION

### *Author Education*

Very early on in the life of JACoW, it became apparent that papers were no longer being prepared by trained technical staff, but by the authors themselves, with varying degrees of success. Templates were therefore developed, and over the years we have seen a steady improvement in the quality of manuscripts submitted. To provide a good service the JACoW editors analyse the problems encountered at each conference and make an effort to address the problems either via the templates, or via the instructions and guidelines.

### *Editor Education*

JACoW editors get their initial training in processing in the Proceedings Offices of the larger accelerator conferences (IPAC, PAC, LINAC, ICALEPCS, etc.). The annual Team Meetings offer tutorials in SPMS as well as the important job of running the scripts that pull all contributions together into the final publication package.

Editor training is obligatory. It is a JACoW boundary condition for any conference wishing to join the JACoW collaboration.

## JUST HOW DO CONTRIBUTIONS MAKE THEIR WAY INTO THE JACOW PROCEEDINGS?

All contributions, whether oral or poster, are entered into the SPMS. Each contribution has a title, an abstract, a topic (Main plus Sub-classification), a presentation type (oral, poster, etc.) and a set of authors with different “roles”: owner, primary author, presenter, co-author ...

Communication between the conference organizers and the contributors and delegates is via the SPMS interface and the e-mail utility. It is essential that submitting

authors ensure that the data, and roles, are correct, in particular concerning the:

- profiles: the data entered in profiles is used to generate the table of contents and author index of the conference proceedings;
- roles: mails are generally sent to the primary/submitting author;
- main plus sub-classification: contributions are examined by the SPC by main plus sub-classification. Contributions that are entered incorrectly slow down the work of the SPC, and can even be overlooked in the selection of oral presentations;
- scheduling of contributions for presentation in the poster sessions: while a first sort is by topic (main plus sub-classification) this is refined with a sort by “presenter”. If these two criteria are not respected work can be scheduled out of context, and presenters can find themselves with several posters to man in different places.

Once the programme is decided, once all contributions are scheduled, the programme booklet is produced. At this stage it is no longer possible to move contributions between sessions.

And then comes the deadline for the upload of contributions to the proceedings to a fileserver, but with the metadata being stored in the SPMS. The JACoW templates have contributed enormously to improving the publishable quality of contributions, though there is ample room for improvement. For the larger conferences that practice on-line processing during the conference, it is extremely important that the deadline for upload of contributions is respected since, from the day following the deadline a team of editors begins processing. For IPAC'10 the target was to process 80% of the contributions by the time the delegates arrived at the conference venue for registration. This cleared the bulk of the processing, leaving time for the “core” team to initiate novice editors into mysteries of electronic publication, and to begin the second stage of “Quality Assurance”.

The status of processing is communicated to authors immediately an editor completes the processing activity. The status is indicated by “dots”:

- a red dot indicates that the paper could not be processed, or that the author has not respected the JACoW guidelines, and must re-submit, or pass by the proceedings office to discuss the problems;
- a yellow dot indicates that the editor had to open the source file to correct problems. In this case the author is required to proofread and approve for publication;
- a green dot indicates that the editor processed the paper successfully and that the paper is considered OK for publication – on the condition that it passes Quality Assurance, a cross-check by a different editor.

JACoW editors have a further dot, reserved for the very worst specimens, which are displayed in the Proceedings Office Chamber of Horrors for contemplation over coffee. We offer no prizes for guessing the colour ...

It is essential that authors respect the guidelines for the preparation of contributions, as well as the deadline for upload. Only in this way can the editors work swiftly and publish rapidly. When authors ignore the simple basics, the Dragon Lady shown in Figure 4 below is called in.

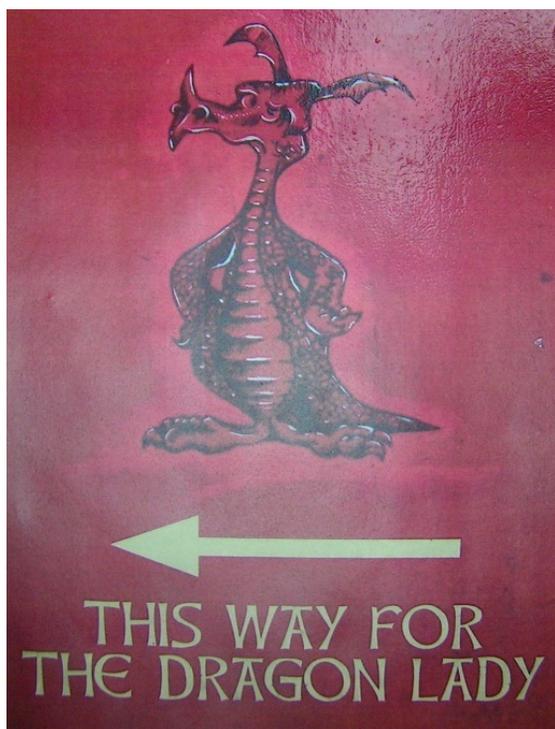


Figure 4: This way for the Dragon Lady.

Following the conference, when all contributions have been processed and quality assured, the Editor verifies that all contributions were presented, and checks that the title and co-authors entered into the SPMS match what is on the uploaded and processed contribution, since the table of contents and author index are generated from SPMS data, not from the individual files.

Once everything is in place, it is time to run the JACoW Proceedings Scripts Package (JPSP). The scripts, developed by JACoW's resident magician, Volker Schaa, pull the final complete set of proceedings into place using data extracted from the SPMS to produce a table of contents and author index, to calculate page numbers and enter them and banners on each page of the final set of proceedings. The scripts also extract SPMS data and insert them into what are known as "hidden fields" in each individual contribution .pdf file. The JACoW search engine searches on the contents of these "hidden fields".

### IPAC'10 SALTMINES

The IPAC'10 Proceedings Office (Saltmines in JACoW jargon) Team was composed of around 25 persons. The pre-conference IT team, responsible for setting up the computers for the editors, was lead by Akihiro Shirakawa (KEK). Apart from several local Japanese members, Hiromitsu Nakajima and Hiroaki Katagiri (KEK), the IT team benefitted from the experience of the EPAC'08 IT

specialist, Stefano Deiuri (Elettra); the Linac'10 editor Hiroyuki Sako (J-PARC), the IT specialists from IPAC'11 and '12, respectively Iker Etxebarría (ESS) and Paul Jines (LSU) participated in order to learn and prepare themselves for their own conferences.

There was a pre-conference "core" of experienced editors composed of Ivan Andrian (Elettra), Jan Chrin (PSI), Martin Comyn (TRIUMF), Cathy Eyberger (ANL), Leif Liljeby (MSL), Michaela Marx (DESY), Raphael Mueller (GSI), Christine Petit-Jean-Genaz (CERN), John Poole (retired from CERN, former JACoW Chair), Volker RW Schaa (GSI) who, joined by Hiroyuki, Iker and Paul who changed hats, began processing in earnest on Thursday, 20 May.

By Sunday, 23 May the team had successfully completed the processing of their goal of 80% of the contributions submitted. During the afternoon John Poole reviewed progress, and outlined the job for the additional members of the team, some experienced, some there to learn within the aims of the JACoW Collaboration: Sakae Araki (KEK), Kevin Brown (BNL), Carl Finlay (CLS), Maximz Kuzin (INP), Kazuyuki Nigorikawa (KEK), Leandro Piazza (LNS), Marie Robichon (ESRF), Todd Satogata (BNL), Heping Yan (SINAP), Youjin Yuan (IMPCAS).

Marlen Bugmann (PSI) and Craig Stevens (LSU) staffed the Author Reception with support from other editors. Apart from filing contributions, receiving authors and responding to queries, they also put in the first effort at cross-checking the authors on the papers against those in the SPMS, which is used to generate the table of contents and author index.

By the end of the conference, 1545 contributions had been uploaded, processed, and as each one reached green dot status, was quality assured. All 1545 contributions were published "pre-press", without author index or table of contents, on the last day of the conference. The aim of the editors is to achieve publication at the JACoW site a few weeks after the conference. This contribution, the last to be completed, is the 1567<sup>th</sup> ...

The whole IPAC'10 "Saltmines" Team is exceedingly grateful to Akihiro Shirakawa who oversaw the local arrangements for proceedings office staff with such attention to detail, and also to Yoko (Pickles) Hayashi, the conference secretary who was ever present to take care of our every need. A little lady with an incredible punch.

### WHAT DOES THE FUTURE HOLD?

#### *Extending the Scope of the JACoW Site*

The JACoW Steering Committee has approved the principle of extending the scope of the JACoW site to include extinct journals, and symposia. The site will be undergoing a facelift and all JACoW profile owners will be informed in due course.

#### *Manpower*

While JACoW, the Website and the Collaboration, have reached maturity, the whole JACoW effort rests on

the shoulders of very few persons whose laboratories allow their staff to contribute a percentage of their working hours to JACoW. The laboratories concerned are essentially CERN, DESY, GSI, KEK and FNAL, while several others allow their staff at least to join the teams at the major conferences, contributing thus to the rapid production of proceedings, and to the training of inexperienced editors who are new to the Collaboration.

But this is not sufficient. The JACoW site is totally free access and free of charge for the community, but there is a cost, albeit an almost invisible one, in terms both of financial and human resources. The laboratories, whose staff dedicate a percentage of their time to JACoW contribute to covering this cost. The laboratories that allow their staff to join the editorial teams at conferences

contribute to covering this cost. The conference budgets that cover the rental of computing equipment, and cover local expenses for editors, contribute to covering this cost.

But more laboratories need to be involved. The JACoW Collaboration needs more people with wider competences to join the effort and spread the load.

## REFERENCES

- [1] C. Petit-Jean-Genaz and J. Poole, "JACoW, A Service to the Accelerator Community", EPAC'04, Lucerne, July 2004, THZCH03, p. 249 (2004); <http://www.JACoW.org>.