Criteria for Editors Processing Papers

- Red Dots, Yellow Dots, Green Dots, More

Jan Chrin, PSI

Team Meeting
16-19 November 2010, BNL, NY

Publication on JACoW

Publication on JACoW requires the submission of papers suitable for electronic viewing. JACoW does not itself make mandates on the format of papers. This is the role of the Conference organizers. In this respect, the document “Preparation of Papers for JACoW Conferences” is the ad-hoc standard. The editing criteria presented here relates to this document.

The Diligent Author

PREPARATION OF PAPERS FOR JACoW CONFERENCES

The Diligent Author will have…

Not only used the JACoW template but also digested and implemented the requirements for electronic publication stated therein

And before uploading the author would have checked his paper against “Common Oversights” just to be double sure paper conforms

All required files uploaded, i.e. source (+ supporting files), PostScript

The Diligent Editor

PREPARATION OF PAPERS FOR JACoW CONFERENCES*

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Abstract

Many conference series have adopted the same standards for electronic publication and have joined the Joint Accelerator Conference Website (JACoW) collaboration [1] for the publication of their proceedings. This document describes the common requirements for the submission of papers to these conferences. Please consult individual conference information for page limits, method of electronic submission, etc. It is not intended that this should be a tutorial in word processing; the aim is to explain the particular requirements for electronic publication at these conference series.

SUBMISSION OF PAPERS

Each author should submit the PostScript and all of the source files (text and figures), to enable the paper to be reconstructed if there are processing difficulties.

MANUSCRIPTS

Templates are provided for recommended software and authors are advised to use them. Please consult the individual conference help pages if questions arise.

General Layout

These instructions are a typical implementation of the requirements. Manuscripts should have:

- Either A4 (21.0 cm × 29.7 cm; 8.27 in × 11.69 in) or US letter size (21.6 cm × 27.9 cm; 8.5 in × 11.0 in) paper.
- Single-spaced text in two columns of 82.5 mm (3¼ in) with 5.3 mm (0.2 in) separation.
- The text located within the margins specified in Table 1 to facilitate electronic processing of the PostScript file.

Table 1: Margin Specifications

Margin	A4 Paper	US Letter Paper
Top	37 mm	19 mm (0.75 in)
Bottom	19 mm	19 mm (0.75 in)
Left	20 mm	20 mm (0.79 in)
Right	20 mm	26 mm (1.0 in)

The layout of the text on the page is illustrated in Fig. 1. Note that the paper's title and the author list should be the width of the full page. Tables and figures may span the whole 170 mm page width, if desired (see Fig. 2), but full-width figures should be placed at either the top or bottom of a page to ensure proper flow of the text (Word templates only).

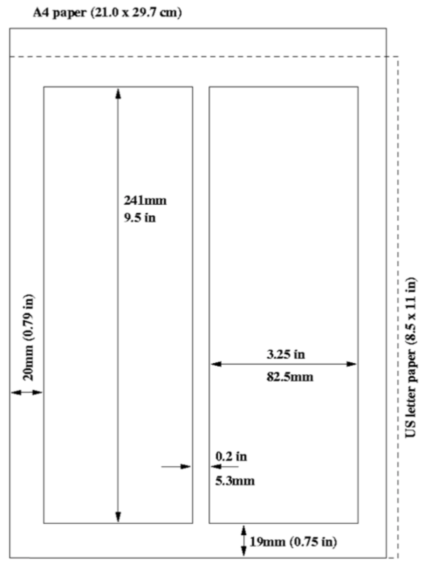


Figure 1: Layout of papers.

Fonts

In order to produce good Adobe Acrobat PDF files, authors using a LaTeX template are asked to use only Times (in roman (standard), bold or italic) and symbols from the standard PostScript set of fonts. In Word use only Symbol and, depending on your platform, Times or Times New Roman fonts in standard, bold or italic form.

Title and Author List

The title should use 14 pt bold uppercase letters and be centered on the page. Individual letters may be lowercase to avoid misinterpretation (e.g., mW, MW). To include a funding support statement, put an asterisk after the title and a footnote at the bottom of the first column on page 1; in LaTeX use \thanks.

The names of authors, their organizations/affiliations and mailing addresses should be grouped by affiliation and listed in 12 pt upper and lowercase letters. The name of the submitting or primary author should be first, followed by the co-authors, alphabetically by affiliation.

*Work supported by …
[#]cee@aps.anl.gov

The Editor's View

Font: Times New Roman, 10pt text

Title: 14pt bold, uppercase, centered, 0pt spacing before, 3pt after

Author/Institute 12pt centered 9pt spacing before 12pt after

Section Heading, 12pt bold, uppercase, centered, …..

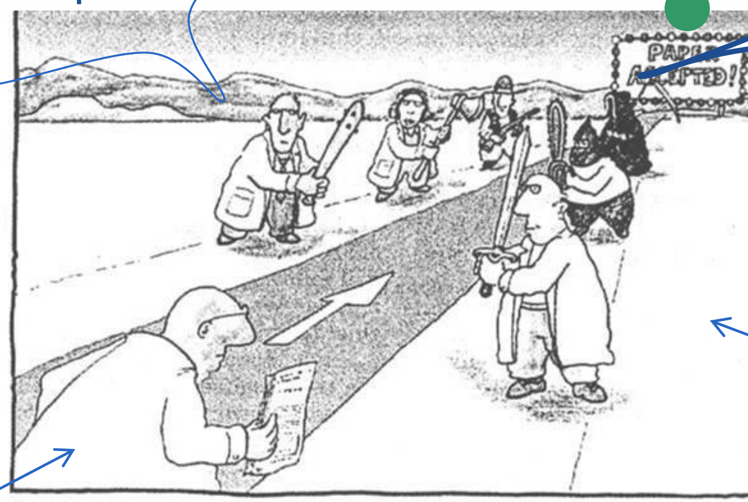
Subsection Heading: Left Adjusted, 12pt italic , Initial letter capitalized. …

…..

The Unsuspecting Author!

Crap in
Crap out!

Dance with the
Grim Repear
but once!



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

JACoW Team
of Editors

A badly behaved author

Editorial Team READY to straighten out that badly formatted paper and sometimes that "badly formatted" author too!

Red Dots, Green Dots, Yellow Dots, More!

- Red dot: Template not used; max page limit exceeded; editor unable to produce final pdf (e.g. missing files)

Essential Editing
Desirable Editing
Optional Editing

- Yellow dot: Paper reprocessed from source; author required to proof-read pdf
- Green dot: PS->PDF successful; Editor may have made some changes with Acrobat/PitStop
- Brown dot: Self-explanatory!

NB. If red – better to red dot it im-mediately BEFORE starting to edit!

Essential Editing

- General Layout *must conform and margins adhered to*
- Fonts *Times New Roman, with correct font size*
- Title and Author List *correctly formatted*
- Section Headings *uppercase, centered*
- Sequential citations to Figures, Tables and References
- No page numbers, no numberings of sections

Desired Editing

- Subsection Headings *Often Initial Letter Not Capitalized*
- Paragraph Text *incorrect indent at start of paragraph*
- Figures *attention to captions, positioning and formatting*
- Tables *attention to positioning of Table Heading*
- Citations to figures *Figure 1/ Fig. 1 Table 1*

Optional Editing

- Equations *spacing not adhered to, often not numbered*
- Footnotes v Endnotes *inconsistent use of*
- References *anything goes, should at least be consistent and properly aligned*
- Table Formatting *unnecessary use of vertical lines*

Table Headings(!)

COMMISSIONING OF RAMP AND SQUEEZE AT THE LHC

S. Redaelli*, M. Lamont, G. Müller, R. Steinhagen, J. Wenninger,
CERN, Geneva, Switzerland
X. Buffat, EPFL, Lausanne, Switzerland

Abstract

The energy ramp and the betatron squeeze at the CERN Large Hadron Collider (LHC) are particularly critical operational phases that involve the manipulation of beams well above the safe limit for damage of accelerator components. In particular, the squeeze is carried out at top energy with reduced quench limit of superconducting magnets and reduced aperture in the triplet quadrupoles. In 2010, the commissioning of the ramp from 450 GeV to 3.5 TeV and the squeeze to 2 m in all the LHC experiments have been achieved and smoothly became operational. In this paper, the operational challenges associated to these phases are discussed, the commissioning experience with single- and multi-bunch operation is reviewed and the overall performance is discussed

INTRODUCTION

The Large Hadron Collider (LHC) has seen an exciting initial operation at 3.5 TeV, with stored energies up to 9 MJ per beam at the time of this workshop. The energy ramp and the betatron squeeze are particularly critical operational phases that involve delicate handling of beams above the safe limits (assumed limit is 3.1×10^{10} protons at 3.5 TeV). Presently, the nominal parameters have been achieved in terms of bunch intensity, ramp rate, transverse and longitudinal beam emittance. The commissioning is now focused on increasing the stored beam energy to reach by the end of the 2010 run the luminosity goal of $10^{32}\mathrm{cm}^{-2}\mathrm{s}^{-1}$ and up to 30 MJ stored energy [1].

In order to achieve a good collider performance and minimize the risk of quench and damage, it is clearly important to keep under control losses during ramp and squeeze. Machine protection constraints also impose tight tolerances on the orbit and optics stability. In this paper, we present the performance of ramp and squeeze at the LHC under various conditions. After a brief introduction on the run configurations and on the commissioning strategy, the tools developed to perform ramp and squeeze are presented and the performance in term of beam transmission, orbit stability and tune and chromaticity stability are presented.

Table 1: LHC 2010 proton run configurations and achieved performance at the time of this workshop. The goal for 2010 is to achieve a luminosity of $10^{32}\mathrm{cm}^{-2}\mathrm{s}^{-1}$ by the end of October, with stored energies up to 30 MJ per beam.

Parameter	Value		
	I	II	III
Colliding beam energy [TeV]	1.18	3.5	3.5
Peak luminosity [$10^{32}\mathrm{cm}^{-2}\mathrm{s}^{-1}$]	–	0.11	0.5
Maximum stored energy [MJ]	<0.01	2.7	9 #
Single bunch intensity [10^{10}p]	3	11	11
Norm. transv. emittance [μm]	3.5	2.0	2.0
Bunch length at flat-top [ns]	1.	1.4	1.2
β^* in IP1/IP5 [m]	11	2.0/3.5	3.5
β^* in IP2/IP8 [m]	10	2.0/3.5	3.5
Crossing angle IP1/IP5 [μrad]	0	0/100	100
Crossing angle IP2 [μrad]	0	0	110
Crossing angle IP8 [μrad]	0	0	100
Parallel beam separation [mm]	±2.0	±2.0	±2.0
Main dipole ramp rate [A/s]	2.0	2.0	10.0

\# Achieved on Sep. 29$^{\mathrm{th}}$ at time of Workshop

the maximum current of the main dipoles, the commissioning of the 3.5 TeV ramp was achieved in March, with ramp rate of 2 A/s (II). The nominal rate of 10 A/s was commissioned with beam in August in preparation for a third run configuration for operation with multi-bunch trains (III). The first operation at 3.5 TeV was limited to about 2.7 MJ stored energy to collect operational experience on the machine protection systems over a period of 4 weeks in summer. Since the month of September, the LHC has entered a new operational phase compatible with up to 400 bunches (which requires crossing angles in all interaction points) with the goal of achieving a luminosity of $10^{32}\mathrm{cm}^{-2}\mathrm{s}^{-1}$ by the end of October. The proton run will be followed by 4 weeks of ion run with the configuration III. Presently, the LHC has seen fills with up to 9 MJ stored at top energy, for a peak luminosity up to $5 \times 10^{31}\mathrm{cm}^{-2}\mathrm{s}^{-1}$.

The squeeze to 2 m in all IPs was achieved on April 7$^{\mathrm{th}}$

Table Headings

Explanations belong
In the text!

Footnotes to the Dozen /1

The Footparagraph

on behalf of….

Abstract

Since 2008 ISIS has been running a second target station (TS-2) optimised for cold neutron production while continuing to run the original target station (TS-1) which began operating in 1984. The ISIS 800 MeV proton synchrotron cycling at 50 Hz produces a total beam power of 0.2 MW which is split between TS-1 and TS-2, 40 pps to TS-1 and 10 pps to TS-2. ISIS operations are described, including the first years of the new two-target-station operational régime.

INTRODUCTION

Although J-PARC [1], PSI [2] and SNS [3] are spallation neutron sources with higher power proton beams, ISIS [4] may still be the world's most productive spallation neutron facility in terms of science delivery, and since 2008 there have been two operational target stations at ISIS. Currently each year on average ~750 experiments are carried out involving ~1500 visitors who make a total of ~4500 visits[*]. These numbers include ~100 experiments and ~300 visits for the ISIS muon facility on TS-1. This paper summarises the experience at ISIS of running two target stations — experience that may be of interest to other facilities considering a second target station.

The ISIS First Target Station (TS-1) began operations in 1984, and neutron scattering work carried out on TS-1 has resulted in a total of ~9000 scientific publications.

The ISIS Second Target Station (TS-2) began operations in 2008. TS-2 was built to facilitate neutron scattering measurements on soft matter, biological samples, and advanced materials, and the target station is optimised for the production of high peak fluxes of cold neutrons in a way that was not possible on TS-1.

The key elements of the accelerator system at ISIS are as follows: H^- ion source at –35 kV, 665 keV 4-rod 202.5 MHz RFQ, 70 MeV 4-tank 202.5 MHz H^- drift tube linac, 52 m diameter 800 MeV proton synchrotron with six 1.3–3.1 MHz fundamental RF ferrite-loaded cavities and four 2.6–6.2 MHz second harmonic ferrite-loaded cavities. The key elements of target systems are as follows: a tantalum-coated tungsten plate primary target with two water moderators, a ~100°K liquid methane moderator and a 20°K liquid hydrogen moderator for TS-1; and a tantalum-coated tungsten cylinder primary target with a coupled hydrogen / solid methane moderator and a decoupled solid methane moderator for TS-2. There are twenty-six beam line instruments on TS-1 (both neutron and muon instruments), and currently seven neutron beam line instruments on TS-2; an additional six or seven instruments for TS-2 are foreseen under Phase 2 of the overall TS-2 project. ISIS is also host to MICE [5], an important step on the road to a practical neutrino factory. A schematic layout of ISIS is shown as Figure 1.

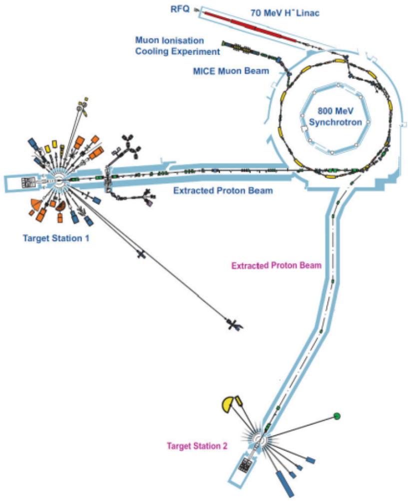


Figure 1: ISIS schematic layout.

AVAILABILITIES

Figure 2 (upper half) shows availabilities[†] of the ISIS accelerator and target system over the past twelve years;

[1] While the named author may have written this particular paper, all the work it summarises has been carried out by members of staff in the ISIS Accelerator and Target Divisions of whom there are too many to name individually here.

[*] On average, very roughly, each visitor visits ISIS three times a year.

[†] For each user cycle, ISIS machine availabilities are defined as (total number of beam pulses actually delivered to target) ÷ (total number of beam pulses originally scheduled to be delivered to target). The charges in the beam pulses are measured and used to update running averages of beam currents. The repetition rate at which TS-1 is set to run (either 40 [illegible] pps) is automatically checked every 5 minutes, and the number of beam pulses expected (essentially the divisor in the quotient above) is adjusted accordingly. All machine trips (*i.e.* beam interruptions which have to be reset by the machine operations crew) and the durations of the trips are automatically recorded. Trips longer than 1 hour, 3 hours and 6 hours are highlighted. These three classes of trips are defined to be over only when the beam pulse repetition rate returns to the full repetition rate (*i.e.* beam pulses at repetition rates less than the full repetition rate are disregarded for calculating the length of trips, although of course they do count towards the total number of beam pulses delivered to target (essentially the dividend in the quotient above)). Everything that prevents beam from being delivered to the TS-1 and/or TS-2 targets is included in the machine "non-availability" — *i.e.* off-time for re-tuning, accelerator faults, target faults, plant faults, RAL site electricity supply faults, *etc.* all count towards machine non-availability.

Footnotes to the Dozen /2

the average of the set of availabilities is 86%, an[d] standard deviation is 8%; availability appears to become gradually worse with time. However, unti[l] including 2003 there used to be the opportunity to "run-on" to cycles with poor availabilities — whe[n] several "bad" days could be replaced by addit[ional] "good" days added to the end of the cycle — but [this] opportunity no longer exists. Adding run-on could lead to noticeable improvements in availabilities, as several days in a cycle several tens of days long can represent a ~10% effect. In order to make a fair comparison of the availabilities over the twelve years covered in this paper the run-on effect has been removed‡. The resultant data are also shown in Figure 2 (lower half). The availabilities can now be seen to be essentially constant between 1998 and 2006 inclusive, and then are slightly lower from 2007

removal of the run-on effect, as that was how ISIS actually ran at the time, but also including the comment that the apparent worsening o performance is simply a consequence of how the machine was scheduled, not a consequence of how it *ran*. It is probably also true that it is the availabilities in the upper half of Figure 2 that should be compared with availabilities of other facilities, especially as many of them operate run-on régimes§.

‡ By adding the "bad" days to the duration of the cycle, and assuming that the beam was off during the bad days.

§ Even ILL, for example, in 2008 added five days of running to compensate for "minor pre-start-up testing woes" and "a cut in the mains electrical supply" [6].

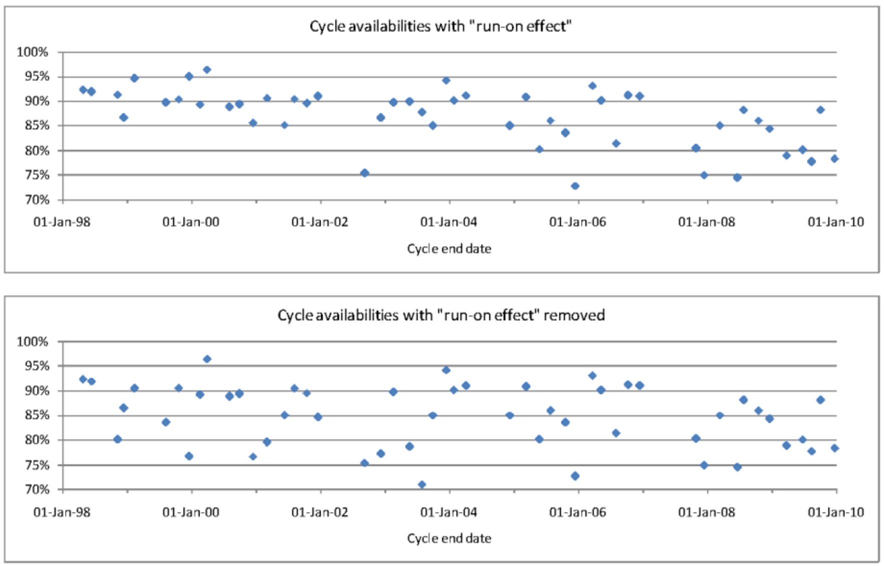
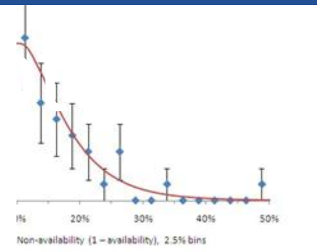


Figure 2: Availabilities of ISIS accelerator and target system since 1998, with and without run-on effect.

Figure 3 shows the frequency distribution of the cycle availabilities — but plotted in terms of "non-availability". Also shown in the figure is a fit by the log-normal distribution. The log-normal distribution is used to represent the multiplicative product of many independent random variables each of which is positive**, and the consistency of the fit and the data tends to support the idea that down-time is due not to any one particular cause but to a large number of causes.

** In effect, a sort of "multiplicative equivalent" of the central limit theorem for additive quantities.



[frequ]ency distribution of availabilities [in terms of "no]n-availabilities". The error bars have [th]e usual square roots, and the χ^2 of the fit [per degree of fr]eedom is 0.58.

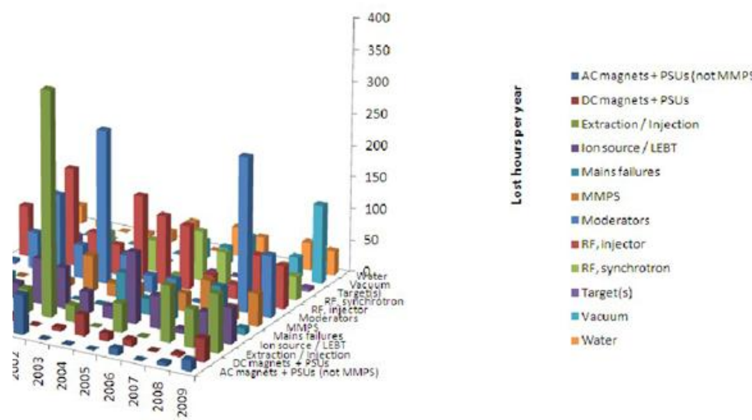
[Mac]hine down-time is divided into a great [many]l equipment categories — too many for [pr]eciation. But the periods of down-time [in t]he operations reports can be attributed to

indeed being overcome.

† There is always a degree of arbitrariness about such representations. For example, should the failure of an RF window in a linac tank be categorised as an RF failure or as a vacuum failure?

‡‡ The "headline" faults are the faults emphasised in the operations report compiled after each cycle. There is a "chronic background" of faults which together with the headline faults make up the total number of faults.

§§ In Cycles 2008/01 and 2008/05 231 hours were lost to moderator headline faults, more than half of all the time lost to moderator faults between 2004–05 and 2009–10 inclusive; these were due to unusual bursting disc, heater, diverter valve and circulator failures, and to leaks. In Cycle 2009/05 93 hours were lost to vacuum headline faults, more than one-third of all the time lost to vacuum faults between 2004–05 and 2009–10 inclusive; this was due to the failure of a vacuum-to-air brazed joint in Tank 4 of the linac after ~35–40 years; the problem has been cured, and measures have been taken to prevent a similar occurrence in the only other comparable joint in the tank.



[Distr]ibutions of lost hours in headline faults as a function of major fault category over the last twelve years.

OPERATIONS

[The ru]nning pattern is roughly as follows. [Each] year there are five sequences as follows: [start-up an]d/or shutdown period; ~7–10 days for run-[up and machine] physics; ~35-day user cycle (operating twenty-four hours a day, seven days a week); ~3-day machine physics period. Because of problems encountered during shutdown/maintenance periods or as equipment is brought back on again or because of

Edit at Source or in PDF?

at Source

Reprocessing from source dependent on Word version Asia/ West

[] not an uncommon phenomena!

Editor introduced errors !

in PDF

Major changes (*) in pdf warrant a yellow dot. Acrobat/PitStop can still mess things up!

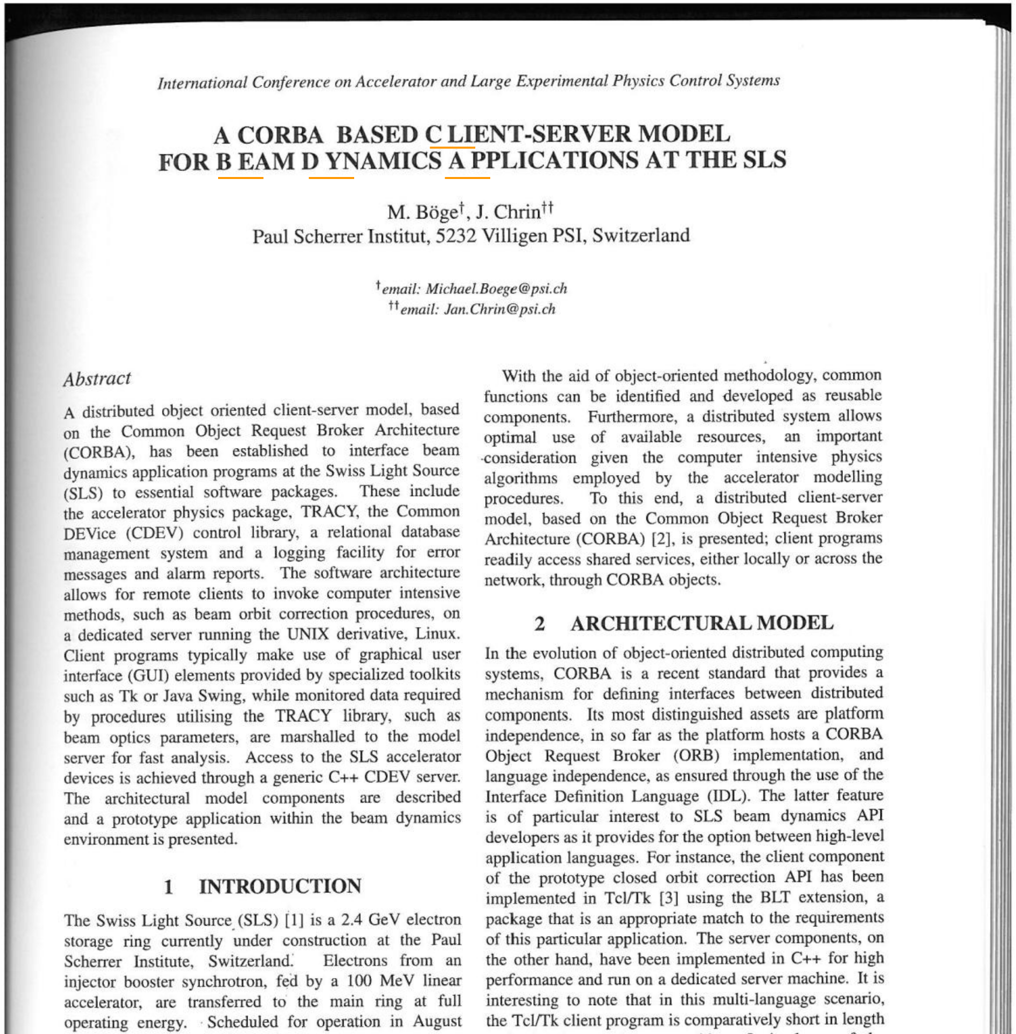
Minor changes -> green

(*) If much editing required, best done at source (remain flexible to later changes) – time for reprocessing from source a small perturbation to total edit time

PitStop PitFalls!

— Text Editing with PitStop potentially troublesome for the unskilled

Also: bizarre displacements of text within the body of the text has been seen



International Conference on Accelerator and Large Experimental Physics Control Systems

A CORBA BASED C LIENT-SERVER MODEL
FOR B EAM D YNAMICS A PPLICATIONS AT THE SLS

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Abstract

A distributed object oriented client-server model, based on the Common Object Request Broker Architecture (CORBA), has been established to interface beam dynamics application programs at the Swiss Light Source (SLS) to essential software packages. These include the accelerator physics package, TRACY, the Common DEVice (CDEV) control library, a relational database management system and a logging facility for error messages and alarm reports. The software architecture allows for remote clients to invoke computer intensive methods, such as beam orbit correction procedures, on a dedicated server running the UNIX derivative, Linux. Client programs typically make use of graphical user interface (GUI) elements provided by specialized toolkits such as Tk or Java Swing, while monitored data required by procedures utilising the TRACY library, such as beam optics parameters, are marshalled to the model server for fast analysis. Access to the SLS accelerator devices is achieved through a generic C++ CDEV server. The architectural model components are described and a prototype application within the beam dynamics environment is presented.

1 INTRODUCTION

The Swiss Light Source (SLS) [1] is a 2.4 GeV electron storage ring currently under construction at the Paul Scherrer Institute, Switzerland. Electrons from an injector booster synchrotron, fed by a 100 MeV linear accelerator, are transferred to the main ring at full operating energy. Scheduled for operation in August

With the aid of object-oriented methodology, common functions can be identified and developed as reusable components. Furthermore, a distributed system allows optimal use of available resources, an important consideration given the computer intensive physics algorithms employed by the accelerator modelling procedures. To this end, a distributed client-server model, based on the Common Object Request Broker Architecture (CORBA) [2], is presented; client programs readily access shared services, either locally or across the network, through CORBA objects.

2 ARCHITECTURAL MODEL

In the evolution of object-oriented distributed computing systems, CORBA is a recent standard that provides a mechanism for defining interfaces between distributed components. Its most distinguished assets are platform independence, in so far as the platform hosts a CORBA Object Request Broker (ORB) implementation, and language independence, as ensured through the use of the Interface Definition Language (IDL). The latter feature is of particular interest to SLS beam dynamics API developers as it provides for the option between high-level application languages. For instance, the client component of the prototype closed orbit correction API has been implemented in Tcl/Tk [3] using the BLT extension, a package that is an appropriate match to the requirements of this particular application. The server components, on the other hand, have been implemented in C++ for high performance and run on a dedicated server machine. It is interesting to note that in this multi-language scenario, the Tcl/Tk client program is comparatively short in length

33 Reasons Not To Be Cheerful

Part I

HB2010 Paper Editors' Page

Jan Chrin

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TUO1A01

Check all reasons for assigning a Yellow Dot to this paper

- ☐ 10 - General Problems related to Templates
- ☐ 14 - General Problems with Fonts
- ☐ 16 - General Formatting Problems
- ☐ 26 - Miscellaneous Minor Problems
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- ☐ FC02 Multiple PostScript Files
- ☐ FC03 No Source Files
- ☐ FC04 Unusable Files
- ☐ FC05 Bad PS: Scale to fit
- ☐ FC06 Bad PS: Colour image printed B/W
- ☐ FC07 Bad PS: PostScript/EPS doesn't distill
- ☐ FC08 Bad fonts in PostScript
- ☐ FC09 Supporting files not uploaded
- ☐ FC10 Bad EPS: Bounding Box wrong/full page image
- ☐ FP01 Font Problems (wrong font, wrong font size, Type3/bitmap font)
- ☐ FP02 Font Problems (missing character, unknown glyph)
- ☐ MP01 Minor Formatting Problems
- ☐ MP02 Spelling Corrections
- ☐ MP03 Too many pages, blank pages
- ☐ MP04 Other (see comments)
- ☐ TC01 Incorrect Title, Authors, Affiliation formatting (size, UPPER/Lowercase, not in required lowercase [e.g. MHz], country missing)
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- ☐ TC04 Figure formatting incorrect (outside margins, single/multiple line caption not centred/justified, Caption wrongly labeled [abbreviated, colon missing, wrong font size, bold/italic/...])
- ☐ TC05 Footnote formatting incorrect (outside margins, no line above, not at bottom/first column)

33 Reasons Not To Be Cheerful

Part 2

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- ☐ TC08 Figure/Table not referenced in text or missing
- ☐ TC09 Equation/Eq., Figure/Fig., Table/Tab. wrongly used in text (lower case, abbreviated, period missing)
- ☐ TC10 Slow graphics
- ☐ UT01 Template not used or parameter change
- ☐ UT02 A4 on US or US on A4 to produce PostScript
- ☐ UT03 Incorrect column and/or intercolumn widths

Comments to Author	Editor's Notes

Some editors give detailed account of every change

Note: You have not changed the papers' status You may continue if you simply wish to ac additional comments.

Save

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Subjective or Objective?

Criteria for Editors defined by the Chief Editor/Scientific Secretariat – know your goals!

IPAC (>1000 papers)	DIPAC (150 papers)
Speedy Proceedings	Tidy/Printed Proceedings
Less stringent criteria while ensuring uniformity	Correct *everything*
Edit in pdf (hence more green dots)	Edit at source (more yellow dots)

Final Remark

Every Editor find his/her Quantum State

Paper in 

Minimalist Pedantic Pragmatic

Paper Out   

What kind of Editor are YOU?

set your “editing level” to that defined by the “goal” by the Conference Scientific Secretariat