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Development of the Virtual Visitor Center at SLAC*

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Abstract

The Virtual Visitor Center (VVC) web site (www2.slac.stanford.edu/vvc) is a "virtual" version of the Visitor Center, a mini science museum that opened at SLAC in 1996. The VVC was made public in December 1998. Both centers contribute to SLAC mission regarding education of the next generation and increasing scientific awareness of the public. The site is designed to mimic the real visitor center and allow a larger audience to the information. The intent was to reach the 8^{th} -12^{th} grade audience. Considerable effort was made to organize the content, including color-coding graphical elements for each main topic area. Tables of contents, a search tool, several photo tours, as well as graphical and non-graphical menu bars allow users many methods of navigating the site. The site was developed over almost two years using an estimated .95 FTE, split between a program manager, graphic designer, content provider (theoretical physicist), and a summer intern (high school teacher). As of November 1999, the site consists of 1,147 files, 935 images, 3,080 internal hyperlinks, and 190 external hyperlinks. The site has had over 1 million hits between January and mid-October 1999 and averages about 600 page views each day. Future plans include bringing the web site into compliance with the W3Cs Web Content Accessibility guidelines, thoroughly integrating the glossary terms, continued incorporation of current research at SLAC, and adding more interactivity.

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How it all Started

The "Virtual" Visitor Center web site (www2.slac.stanford.edu/vvc) was conceived during the development of the real Visitor Center at SLAC. Construction of the Visitor Center began in late February 1995. The center serves as a "mini science museum," giving visitors and staff a glimpse of the activities conducted at SLAC. Approval for the Visitor Center concept came in 1989, but funding took some time to obtain. In addition to the exhibits covering accelerator operation and current scientific research interests, the center also houses a skeleton of an ancient marine mammal, the Paleoparadoxia. Excavated on the SLAC site during initial construction in the early 1960s, this creature was reconstructed from casts of the original bones and Adele Panofsky's tireless effort over many years. In January 1996, Paleoparadoxia was installed in the Visitor Center. The center was opened to the public on October 2, 1996.

The group involved in planning the visitor center information presentations included Helen Quinn (theoretical physicist), Terry Anderson (graphic designer), P.A. Moore (public information), Nina Stolar (public affairs), and Kathryn Henniss (technical publications). Before and during development of the Visitor Center displays, it became clear that more material than could be reasonably displayed in exhibits and posters was needed to inform the public about the science of the laboratory. The group came up with the idea for a web-based or "virtual" version of the Visitor Center. Since SLAC had such

an early start in the web (1991), it seemed appropriate to use the web to provide this information to the public. Helen Quinn began developing content for this site. The materials she developed, together with the posters designed by Terry Anderson for the Visitor Center itself, were the initial basis of the "Virtual" Visitor Center (VVC). In the summer of 1996 I started working with W. Ralph Nelson on new content covering the EGS4 computer program, for a planned Visitor Center poster display and section of the VVC. After joining the TechPubs staff in early 1997, I was assigned the Virtual Visitor Center as a main web project. Preliminary meetings were held early in 1997 but real development in graphic design and content organization started in August 1997.

I never really questioned why the real or virtual visitor centers exist until I recently read SLACs mission statement. The mission statement fifth bullet item reads: "Contribute to the education of the next generation of scientists and engineers, and to the scientific awareness of the public." That pretty much says it all.

Design Concepts

When the project started, the most commonly used web browsers were Netscape 3 and Internet Explorer 3. Browsers just started to uniformly recognize table tags. Coincidentally, we just started using a server that supported FrontPage97. We decided to take advantage of its site management and WYSIWYG editing tools to facilitate development of the site.

Our primary goals for the site are:

1. Mimic the Visitor Center organization so those using the VVC while at the center would see the connection between the real and virtual sites. The VVC allows visitors to get information on topics of interest displayed on the walls of the center.
2. Make the site more accessible the community at large.
3. Simplify and illustrate content to reach the 8^{th} - 12^{th} grade target audience. The theory section is intended for instructors.
4. Provide a "wormhole" connection to the VMRL site (www.lost-worlds.com /slac/) under development by Seismic Entertainment, with DOE funding assistance.

Content Organization and Navigation

The navigation tools reflect the content organization of the posters in the Visitor Center. A glossary, table of contents, and site specific search tool supplement the navigation scheme. The navigation tools include graphic elements and color coding by content.

Exhibits and posters in the real Visitor Center are the entry points into each content section in the web site. The main SLAC-science-related content sections and their "color" are:

- Accelerators (red)
- Applications (aqua)
- Detectors (blue)
- Experiments (pink)
- History (gray)
- Nobel (gold)
- SSRL (purple)
- Theory (yellow)

There are three ancillary content sections covering:

- Environment (green)
- Paleoparadoxia (brown)
- Cosmic Rays (lime green)

The main entry pages are identified with the graphic elements described in Table 1.

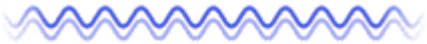
Table 1: Section Entry Page Identification

Left side bar with content icon and "wiggle" line.	

Top navigation bar	
Section label	
Lower navigation bar	

More content was (and is) added "below" the top-level pages. The color-coding and graphical continuity continues into section subpages, as illustrated in Table 2. Navigation tips are included in the site at www2.slac.stanford.edu/vvc/navigate.html.

Table 2: Section Subpage Identification

Small left border	
Section label and link back to the "top" page	
Dividing line	
Subheading bullets	
Lower navigation region	

ACCESSIBILITY

As our introductory page states: "The Virtual Visitor Center website is intended for the general public, particularly students and teachers. Anyone with an interest in the science we study at Stanford Linear Accelerator Center and the tools we use in that study is invited to explore this web site – and to visit our physical site and its real visitor center as well."

With this in mind and not sure of the browser technology direction, we decided to keep the site low tech, so anyone could use the information. Even the animations are, so far, simple gif animations. Some of the sections include many images, but they are optimized for web delivery. Once the site was complete, our intention was to add enhancements to provide more interactivity and illustrations.

Early designs concepts were viewed under a variety of current web browsers on all the available platforms (Mac, NT, and Unix) and verified using several validation services, including Bobby. A recent check on one of the entry pages indicates that validation again would be a good idea.

REACH THE AUDIENCE

Much of the content material provided by Helen Quinn was at a higher instructional level than desired for this project. Tom Woosman, a high-school teacher, spent about 8 weeks in the summer of 1997 editing the material to bring it down to the intended audience level. In addition to making language changes, he also suggested page breaks, illustrations, and showed how the material was linked. When Tom finished his edits, Helen reviewed the material for accuracy, and sent the content to me for incorporation into the web site. I made additional language changes and divided the material for easier readability. Although we tried to provide short web pages, the material did not always lend itself to this treatment. The most difficult section to handle was Theory. The concepts described couldn't be compressed to a paragraph of text and images without losing informational integrity. Since the Theory section is primarily designed for instructors, the pages tend to be longer, more involved, and have fewer images.

Upon section completion, Helen and at least one subject matter expert reviewed it for technical accuracy. Helen reviewed the experts' changes before incorporation into the web pages. Technical Publications staff reviewed content organization and ease of navigation in each section. Before the site was officially made public, by submitting to many search engines, the Web Coordinating Committee (our web policy recommendation and site approval committee) reviewed the site and approved it.

Since SLAC is such a large web site, it is a common target for search engine robots – a testing ground of sorts. As a result the VVC, which was developed and is hosted on a world readable server, was discovered in early 1998 and comments started to arrive. The comments are available in a public guestbook (www2.slac.stanford.edu/vvc/

guestbook.html) and sent to me as email. Very few comments have been deleted from this public page to date—those trying to sell something or filled with profanity. Considering the time the comment form has been available and the number of hits to the site, this is a great record.

VRML Site

At the same time the VVC was under development, a local company (Seismic Entertainment) received funding from the DOE to illustrate SLAC using VRML. They showed their VRML tour of the Palenque ruins (www.lost-worlds.com/palenque/index.html) to give us an idea of the SLAC tour they had in mind to create. They came to SLAC several times and took many photographs around the site. They used a "stitching" program to marry the images into 360-degree views. A browser plug-in was necessary to view the images.

Initially each section entry pages included a link to the VRML site. Unfortunately, there was no reciprocal link back to the VVC. Therefore, we removed the link to the VRML site and until some of the following problems are corrected:

- The large web images take a long time to load, even at T1 speeds.
- The mechanics of doing high-energy physics is physically unattractive. Each of the 40 segments of the Klystron Gallery (which is what people see from above) all look alike. If they could have illustrated some of the interactions the physicists are looking for, it would have been much more interesting.
- The VRML site had lots of images, but little content to go with it. Looking at machinery without explanation is not very interesting. A recent review of the VRML site showed that quite a bit of added content, but the site no longer appears to be maintained (there are a lot of broken links and paths through the VRML pages).

Resources

Human resource descriptions and FTE estimates for the development of the VVC are described in Table 3.

Table 3: Human Resources for Development of the VVC

Name	Role	Development FTE (Estimate)
Ruth McDunn	Project Management, Content Organization, Page Design	0.25 FTE (50% time, 6 months)
Rachel Denning	Graphic Design	0.25 FTE (50% time, 6 months)
Helen Quinn	Content Provider/Review	0.25 FTE (3 months)
Tom Woosman	Content Review/Adaptation	0.15 FTE (100% time, 8 weeks)
	Total	**0.95 FTE**

Part of my 50% position in Technical Publications involves ongoing management and maintenance of the VVC. Maintenance includes regular (every few weeks) link checks, responding to comments and glossary term requests, and adding content as is becomes available. The site has been public for about a year.

TIME LINE

The time line shown in Table 4 gives an idea of the project development.

Table 4: Development Time Line

02/97	Project assigned.
05/97	VRML shots at SLAC. Preliminary graphic design ideas developed.
06/97	Preview of VRML site.
07/97	Internal peer review/comments on initial design ideas. VVC moved to www2/vvc and brought into FP97.
08/97	Start adding real content (accelerator and detector, to start) based on Tom Woosman's revisions after Helen's edits.
09/97	Try to get SSRL input for VVC, Helen editing content as it posted. Cosmic ray pages added.
11/97	Peter Tenenbaum performs detailed review of Accelerator Section. Corrections made.
12/97	Completed the accelerator, detector, noble, and SSRL sections.
01/98	Completed most of the theory pages.
02/98	Added environmental pictures. Requested/received okay from photographer. LCLS takes over time.
04/98	Event pictures added to detector section. Early comments from off-site users who found the site.
07/98	Completed theory section.
08/98	Worked on punch list corrections.
09/98	Printed out entire site (358 pages) for review by Helen Quinn (and section reviewers of her choice) and Technical Publications.
10/98	Wait for SSRL approval. WWW-CC approved site for public release.
11/98	Start submitting URL to indexing services and search engines.
12/98	Met with SSRL folks again to ask for their input.
12/98	Received top 10 site of the month awards from The Exploratorium and The Tech Museum.
01/99	Initial development phase completed. Regular maintenance of site begins. Enhancement and additional content added as time and funds permit.
04/99	Added more SSRL content.

Visitor Statistics and Feedback

The VVC is currently made up of 1,147 files (19,092 KB) and 935 images (17,901 KB). There are 3,270 hyperlinks in the web site, with 190 of these links to external sites. These statistics are somewhat inflated because FrontPage, used to manage the site, maintains duplicates of many pages in its management system. To see how the site is being used, I performed an analysis of the log files and reviewed the visitor comments from the public guestbook.

Log File Analysis

Using WebTrends (log file analysis tool, www.webtrends.com), I ran a "complete" report on the VVC log files from Jan 1 - Oct 13, 1999. A copy of the full report is available at www.slac.stanford.edu/~mcdunn/vvc-analysis/1999vvc.html.

Aspect Analyzed	**Statistic**
Number of Hits for Home Page	4,069
Number of Successful Hits for Entire Site	1,079,697
Number of Page Views (Impressions)	165,679
Number of User Sessions	68,679
Average Number of Hits Per Day	3,775
Average Number of Page View Per Day	579
Average Number of User Sessions Per Day	240
Average Number of Users per day on Weekdays (4,286 hits)	258
Average Number of Users for the entire weekend (5,007 hits)	390
Most Active Day of the Week	Fri
Least Active Day of the Week	Sun
Most Active Day Ever (60,947 hits)	04/09/99
Least Active Day Ever (1,059 hits)	01/02/99
Top Referring Sites	**User Sessions**
No referrer	56,650
www2.slac.stanford.edu	5,242
www.slac.stanford.edu	1,582
www.altavista.com	1093
search.excite.com	280

www.looksmart.com	255
www.lycos.com	232
dir.yahoo.com	182
link.yahoo.com	182
search.msn.com	157
search.yahoo.com	144
www.google.com	126
www3.slac.stanford.edu	121
www-project.slac.stanford.edu	112

GUESTBOOK COMMENTS

The following is a dated list of comments received through the public guestbook since March 1998. We started receiving comments before the site was finished or even publicized. Only a couple comments have been removed from the public log—two filled with profanity directed at SLAC in general and a few were trying to sell something. Neither type of comment seemed appropriate to leave in the public page. The comments below have not been altered (except to remove names) or spell checked. The bold face comments are my personal favorites.

Date	Comment
10/31/99	Keep up the GREAT work?
10/28/99	**I saw a story on ABC news about atomic accelerators and how they are attempting to recreate a human size version of the big bang. I don't understand the fundamentals of quantum mechanics but am interested in the subject. I decided to check out the web and found your site. It is fantastic in both format and content! Thanks for providing information to the public.**
10/22/99	An excellent web site. In this moment I am interested in some topics of modern physics and the information of this page has been very usefull for me.
10/19/99	Thankyou for the oppertunity to share our important research wiyj friends and family!
10/1/99	Robert McElrath is very cool!!!!
10/1/99	I am an artist and biologist, but I also think physics is fascinating. I "inhabit" The Hawking Forum, and found a link to this site posted there. I appreciate the non-mathematical explanations of difficult subject matter (no pun intended).
9/27/99	Dr. R. L. Carezani, an Argentinian-Italian, has proposed and proven many aspects of a new theory called Autodynamics. Light has no speed limit, pico-gravitons replace neutrinos, and uncertainty is disproved! http://www.autodynamics.org

9/27/99 love it! link to it! from my page: Frontiers of Science and Discovery http://afc.hypermart.net/discovery.html

9/20/99 A little above my head, but facinating! I will definiately visit more often.

9/15/99 This is a wonderful web site. Very visual and informative. Since my father was involved in the early design of the accelorator, I sure would like to see more pics in the picture tour. I may even catch a glimpse of him. Thanks!

9/1/99 I just wanted to thank you for this web site, it is great, i was lookin up some information on the String Theory, and i found it, thank you again.

8/29/99 I really enjoyed your website and the hand out from the front gate. I think that your work is first class and would love to join you.

8/28/99 thanks slac! after reading about your facility, it was nice to get a feel for it. you have put out lots of gerat stuff...keep up the good work!

8/16/99 whoa..! I gotta say that's one awesome website! The terminology is real easy to understand and the diagrams help alot.It's really interesting and informative,but howz about some stuff on the history of X-rays. Keep up the good work.

8/14/99 FANTASTIC!!

8/7/99 Very good site!

8/6/99 Super Site Ruth !

8/2/99 It is beautifil adress,but it have a few links.

7/28/99 **Very Fancy! C. A. Repenning** *(Note: this person worked on the Paleoparadoxia project with Adele Panofsky)*

7/17/99 I think a wider ranging view of the accelerator and its housings and equipment would aid in conveying the scale of the accl. The presentation of the physics is very good, and helpful in explaining the concepts to students, thank you.

7/16/99 Well done and very interesting.

7/14/99 Wasn't there a Klystron Generator in the movie Forbidden Planet?

7/14/99 I really like your site!

7/13/99 I found the site interesting and a nice way to spend some time exploring new ideas. Keep up the good work

7/8/99 **This is a wonderful site-well planned, great graphics, and accessible to the general public. PS Say hello to Burton Richter-he has given me a tour of SLAC.**

6/27/99 You have an excellant program.

6/26/99 I was fascinated to see more of the sight that I use to help produce vacuum devices for. Eimac in San Carlos, sometimes the professors, or whom ever they were would get impatient for a device, when they were running experiments, so now I have a better idea, what they were jumping up and down about. I found the "theroy" portion of the tour very educational, and have marked this sight on my computer to revisit. I use to live near by but had to move away and start

	using a computer to get an inside view. Thank you
6/18/99	glad your here.Thanks a lot.. I repair linear accelerators at VA MEDICAL CENTER MIAMI FLORIDA neat site you have keep up the good work...
6/11/99	WOW! This is really interesting. It seems very well organized. I really like the use of so many pictures, and I love the glossary! What a great reference. I'll be back.
6/6/99	Clearly the United States is the most technically advanced, out of all nations in the world! The United States will always be advanced Technically. It is important to keep the advancement of High Energy Particle Physics going beyond the Millenium. This facility is one of a kind, and has and will always promote High Technology, now and in the Future of the United States. Long Live Basic Research!
6/4/99	I'm one of your die hard fan.I love science. I've came across some of your pages, it's really fantastic.If you have any information's about him please do send via my e-mail.
5/28/99	You have a wonderful site, and I sure hope you guys can find how the universe started, I'm sure the research on this page helps.
5/28/99	Nice site ! I´d like to recommend the book: SHARON TRAWEEK: BEAMTIME & LIFETIME (very useful for understanding the culture of high energy physicists, also from SLAC..) I ´d also love to see more photos ! (at your Photo tours)
5/27/99	Your school is a beautiful school.
5/16/99	I LIKE YOUR ORGANIZATION AND YOUR CONTENT.
5/10/99	I would like to know what happened yesterday, May 9. It was my understanding that the B-factory was to be online yesterday. Any indication at all whether the J/Psi-k-sort decay is behaving like the Standard Model predicts???? Is the Standard model wrong? Or do you have to produce gobs of B-mesons to indicate that asymmetry is the case????
5/10/99	**I really enjoyes visiting this site. It makes the paleoparadoxia look so well. I have observed my grnadmother working on it for years, and it is nice to see it in its full glory.**
5/6/99	Really neat. I came from the High School that produced (Lord) Ernest Rutherford. Keep up the Research! It's our future!
5/4/99	This is pretty good, um,ok.
5/2/99	This was a very informative and well designed site. I enjoyed surfing through physics. I'm almost done with my intro physics course and i wish i found yoursit earlier, it would have made things much moe interesting. Keep up the good work. I also liek you design
4/29/99	Great site. Do you know if actual tours of SLAC available?
4/27/99	This is such an interesting sight...will be spending alot of time here...
4/23/99	this is an excellent web site!!! I'm a first year physics undergraduate and am learning all about high energy physics, and have found this a very useful source

	of information.
4/22/99	Enjoyed visiting the site. My son is an accelerator operator at SLAC, and it is nice to be able to see where he works.
4/14/99	nice work and excellent
4/3/99	**I am currently undergoing radiation therapy for prostate cancer. I was wanting to learn more about the linear accelerator and have found your site very informative. Thanks very much for being here.**
3/19/99	**I am attending a luncheon with Dick Taylor tomorrow so I decided to research his work. Your web site made me pull out my Physics texts. In your nobel prize section, you clarified some points that revived my interest in particle physics.**
3/15/99	**Very nice site! I like the info on THEORY! Easy to understand! I look forward to using it with my high school physics students. Grew up in Palo Alto and I miss you all!**
3/13/99	I enjoyed the visit. 13 years away hasn't mad too much difference. What is happening in the IR under the parking lot?
3/7/99	Much appreciated, I'll be back . Several years ago I heard of a SLAC periodical that sounced very interesting, perhaps dealing with physics history and / or personalities. If this is true, are back issues available?
3/5/99	Great!
2/26/99	**You have an excellent web site. I will be using it in teaching particle physics to my 17 year old students. Well done!**
2/24/99	Looking for the patent date on the photoelectric effect awared to Albert Einstein.
2/21/99	**Sirs, I am a high school physics teacher. A student recently asked me a question about the mass of quarjs as it relates to the mass of the proton. I easily found the answer on your web site. Thanks!**
2/20/99	really kewl site
2/19/99	Pretty kewl, bod.
2/11/99	thankyou for providing us with your web sites. i found it extremlly usefull in my search for the physicist rutherford. thanks a bunch!
2/11/99	you had a very nice page. Good job!!!
2/9/99	I am a physics student and my teacher and I found this site most informative. I do however find your work of the most basic nature and would like it if you wrote to me asking for guidance.
1/28/99	This will allow visitors and students to get in touch with there professors and special departments to access general information.
1/21/99	I like your web page but it dosen't say where I can find what makes a proton positivly charged and a neutron negativly charged. If it does please tell me where a.s.a.p. thanks

1/19/99 You are doing and always have done an excellent job of land management. My current concerns address another area of our enviroment, recyceling. What are the good people doing to adderss this?

1/17/99 Interesting.

1/13/99 As a senior in high school, I found your site easy to follow and understand. Thanks for providing me with insightful information. Thanks to your web site, I was able to write a research paper on particle accelerators!

12/29/98 I enjoyed your site .. Thank you for your time

12/5/98 very good. very informative

11/30/98 I came to this site to find out about Particle Accelerators. I am interested in this subject because i have chosen to do deliver a short talk about the basic physics behined Particle Accelerators and this web site have provided me with a lot of information about the subject, information that i would normaly not be able to get to. Thank You

11/22/98 nice site It is first time I visit your site. This site is very helpful for teaching of physics in highschool

11/21/98 An inspiration! I will be including a virutal vist to SLAC as part of my students "A level" particle physics course.

11/19/98 This is the greatest site I'e been to I have got to say! It's clear and precise and easy to move around in. I am writing a paper on the tau lepton and how it was discovered etc., and I have wrote to Mr. Martin Perl. He was so awesome! He sent me his "Reflection son the discovery of the tau lepton" right away! I think you guys are so great and you have encouraged me to like science even more! Thanx so much for all the help!

11/15/98 I would like to see some physics that interests me and maybe print out what is allowed. Thank You.

11/11/98 This site is very helpful and informative. It really told me what I needed to know in a clear way. Thanks! Keep up the good work!

11/7/98 I am a researcher in the Theoretical Physics group in the Mehta Resrach institute of Mathematics and Mathematical Physics, Allahabad, India. I visited your VVC site and my frank opinion is that the site is the best that I have visited in months!! The site is maintained very nicely, the page organisation is neat and I got to learn more about SLAC after I went carefully through the individual pages. Keep it up!! Best Wishes, Indrajit

10/27/98 This place is Interesting.

10/178/98 Wow! I learned almost as much about accelerators in just the past couple of hours than I had in all my life! Thanks for the amazingly rich and informative resource!!! Now if I can just get my own linac set up in my back yard….

10/2/98 Hello. I am a stusent to study in nyclear physics. And nawaday I am interested in EGS4 program. I have installed the program on my Linux machine. But Actually I

	hope that I would like to make a data file for all of atoms. I mean I need to know how to make a data file of matirials for example H He Li Be....(All of atoms in periodic table...) If somebodt know how to make it please let me know it... If you have program which was concerned about 'pif(prepared input file)' please let me know how to compile and run it on Linux machine.. Thank you. Best regards
10/1/98	excellent good mix of tech and general descriptions
9/29/98	Quite a comprehensive and informative website.
9/26/98	i like this site, it is nice
9/22/98	Nice site, but I'd like to see a more technical discussion.
9/20/98	Excellent web site! Good hunting at the B factory.
9/11/98	**Thanks to your website. I might have given up on getting enough information on a Ernest Rutherford to complete a 20 Page Thesis for my Chemistry Class at MTSU. Thanks again. Great - studying for a science degree in UK Your site much subatomic particles seem simpler - Thank you**
9/3/98	JUST GRATE GRATE JUST GRATE
8/13/98	Nice site! Interesting, easy to navigate, topics clearly illustrated and commented on. Good stuff!! Also, wonderful that you take the time to share the knowledge!! Thanks!! -Larry- (K7BDD) Oh...if anyone cares...and so you can see what type of nuts are 'hitting' your site... i'm a industrial instrument tech, radio broadcast engineer, amateur radio operator, theatre lighting staff & associate faculty; and voracious reader of particle physics stuff, just because it is fascinating, and because it stretches my brain like a rubber band - laugh. Also read books and listen to books on tape of Stephen Hawking...for similar reasons.
7/30/98	Congratulations on a brilliant site. Very well thought out and easy to follow. Well done.
7/15/98	Great pages!!
7/10/98	I would like to say hallo to the people at SSRL. From 1987 to 1988 I could stay and work for one year at SSRL. I loved this time.
7/7/98	Excellent site. Good teachning resource.
7/1/98	Excellent---lucid
6/16/98	I am a chemist who happens to love physics, particularly the QED that Prof. Feynman developed. This is an excellent site, please keep updating it!!! Thank You
6/14/98	Interesting web page!!!!!!!
5/17/98	Thanx for all your help. I used all your info for a report
5/12/98	Wonderful!!! If this had been around when I was younger I would have understood Richard Feynman. Lord willing I'll be around a few years longer and be able to learn more about the universe you folks are revealing.

4/21/98	**This is a beautifully and intelligently designed site. It offers different levels of scientific detail and as such is suitable for accidental browsing as for a thourough perusal. As a physics teacher I found it personally interesting and informative and also a rich teaching resource. The glossary is a helpful addition as it can provide students with necessary information without having to search for it separately. It can support the accesibility of this sight to the partially informed person. Hope this site continues to be maintained.**
4/15/98	Comments
3/31/98	I would like to know if a much better (fewer Particles/cubic meter) vacuum would produce better data? It seems a better method of removing particles would help operations in general. I know how vacuum systems are limited to 10-18 particles (at best 10-16)/m3. But, I'm quite confident a much much better vacuum can be done. So, would a better vacuum be useful? If the beam could be improved and maintance time reduced it must be better. Iwould like feedback about this and I don't have e-mail. So, I can be reached by phone at 415-665-1223. thankyou,
3/20/98	Interesting
3/10/98	Beautiful site, y'all! It's attractive, thorough, and very informative. The graphics are tasteful, the organization logical, and the writing clear. It must've been a gargantuan challenge, but you clearly rose to it.

Future Plans

The Virtual Visitor Center site needs frequent attention to maintain interest and quality. Unfortunately dedicated staff time for this web site no longer exists, so upgrades can only be approached during "found" time and by summer interns. However, as time permits some future plans include:

1. Bring website into compliance with the W3Cs Web Content Accessibility Guidelines (www.w3.org/TR/WAI-WEBCONTENT/). Although the VVC was designed to be accessible, no guidelines existed at the time of development. Now that WAI guidelines are recommended by the W3C, there is a target to approach.
2. Find a better way to provide access to the glossary terms. Currently only a few terms are identified by an image (G) after the word and the word is linked to the bookmark in the glossary. Crosslinking all the glossary terms as they first appear in a page is a very time consuming process.
3. Include more information about the current research topics at SLAC. Our new director, Jonathan Dorfan, presented great summaries of the major research activities at SLAC at a recent all-hands meeting. I'd like to incorporate some of that material into the site. Adding content is not a problem. Getting the correct type of content is always difficult.

4. Add more interactivity to increase the learning aspects of the site. In general, I'd like to see more animated elements to show interactions and events. Interns from this past summer are working on two interactive elements:
   - A web cam viewing the cosmic ray counter and an associated site with activities appropriate for high school and junior college physics classes to learn some interesting things by looking at that data.
   - A server allowing students to run some simple EGS simulations and get graphic output, plus ancillary information and exercises again designed for classroom use. There are plans to expand this in the future to include a Gamma-ray Large Area Satellite Telescope (GLAST) detector simulation and more about GLAST in general.

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