PANS meeting, Harrington Hall, London, 9, 10 November 2001

Programme

Friday November 9

12.30 Informal lunch
14.00 Welcome, announcements (Adriaan Van der Woude)
14.20 Status of the PANS WEB site (Sissy Körner et al.)
15.35 Status of the NUPEX proposal (Heinz Oberhummer)
16.25 Presentation of the Book, evaluation of the Book project (Ray Mackintosh et al.)

Intermission

17.15 CD-ROM project (Robin Rees)
17.35 PANS-Expo (Alessandro Pascolini)
18.00 A time for dialogue (Ray Mackintosh)
18.35 Questionnaire regarding interest in nuclear science (Istvan Uray)
19.00 Dinner

Saturday November 10

9.00 Welcome to special guests, introduction of the Energy project (Adriaan van der Woude)
9.30 Contributions from "outside" participants + discussion. (Alex Bradshaw, Peter Hodgson, Claude Stephan and others)
10.30 Coffee
11.00 Continuation
12.30 Lunch
13.30 Discussion and decision how to proceed
15.30 Closure of workshop

List of delegates

1.	Jim Al-Khalili	University of Surrey, England	j.al-khalili@surrey.ac.uk
2.	Christoph Bargholtz	Stockholm University, Sweden	bargholtz@physto.se
3.	Marc Beddegenoodts	Katholieke Universiteit Leuven, Belgium	Marc.Beddegenoodts@fys.kuleuven.ac.be
4.	Alex Bradshaw	IPP, Garching, Germany	alex.bradshaw@ipp.mpg.de
5.	Ludwik Dobrzynski	Soltan Institute for Nuclear Studies, Poland	ludwik.dobrzynski@fuw.edu.pl
6.	Genevieve Edelheit	IN2P3, France	edelheit@admin.in2p3.fr
7.	Bill Gelletly	University of Surrey, England	W.Gelletly@surrey.ac.uk
8.	Aref Hamawi	Lecturer in Physics, Sweden	ha@mg.skola.mark.se
9.	Boris Harss	Technische Universität München, Germany	Boris.Harss@Physik.Tu-Muenchen.DE
10.	Peter Hodgson	Oxford University, England	p.hodgson1@physics.oxford.ac.uk
11.	Finn Ingebretsen	University of Oslo, Norway	finni@fyspc-kjerne27.uio.no
12.	Ron Johnson	University of Surrey, England	R.Johnson@surrey.ac.uk
13.	Hans-Joachim Körner	Technische Universität München, Germany	Hans-Joachim.Koerner@physik.tu-muenchen.de
14.	Sissy Körner	Technische Universität München, Germany	sissy.koerner@ph.tum.de
15.	Dionysis Konstantinou	High School Teacher, Lamia, Greece	dionkon@otenet.gr
16.	Andreas Kratzer	Technische Universität München, Germany	Andreas_Kratzer@physik.tu-muenchen.de
17.	Helmut Leeb	Atominstitut der oesterreichischen Universitaeten, Austria	leeb@kph.tuwien.ac.at
18.	Ray Mackintosh	Open University, England	r.mackintosh@open.ac.uk
19.	Daniel Napoli	INFN, Legnaro, Italy	Daniel.R.Napoli@lnl.infn.it
20.	Heinz Oberhummer	Atominstitut der oesterreichischen Universitaeten, Austria	ohu@kph.tuwien.ac.at
21.	Gunnar Ohlén	Lund Institute of Technology, Sweden	gunnar.ohlen@matfys.lth.se

22.	Alessandro Pascolini	INFN, Legnaro, Italy	alessandro.pascolini@padova.infn.it
23.	Teresa Pena	Instituto Superior Tecnico, Lisbon, Portugal	teresa@fisica.ist.utl.pt
24.	Robin Rees	Canopus Publishing Ltd, England	robinrees@compuserve.com
25.	Ursula Renk	München, Germany	rafael.reyeros@r-u-r.com
26.	Rafael Reyreos-Bienert	München, Germany	rafael.reyeros@r-u-r.com
27.	Aliz Simon	Institute of Nuclear Physics (ATOMKI), Debrecen, Hungary	A.Simon@surrey.ac.uk
28.	Claude Stephan	Universite Paris-Sud, France	stephan@ipno.in2p3.fr
29.	Istvan Uray	Institute of Nuclear Physics (ATOMKI), Debrecen, Hungary	uray@moon.atomki.hu
30.	Jan Vaagen	University of Bergen, Norway	jv@sentef1.fi.uib.no
31.	Adriaan van der Woude	KVI, Groningen, Netherlands	vdwoude@kvi.nl
32.	Esther Wilkinson	Engineering and Physical Sciences Research Council, England	Esther.Wilkinson@epsrc.ac.uk

Minutes

Status of the PANS WEB site.

The site is being developed by Boris Harss, Sissy Körner, Ursula Renk and Rafael Reyreos-Bienert. The adress of the as yet unofficial home page is: www.r-u-r2.com/pans/site/html/singles/home.html. In presenting the site the team declared that they have put particular emphasis on

- a "friendly", open and easy access,
- the availability of information for everyone, i.e. for the main target groups of high-school teachers and pupils as well as for the general public or nuclear physicists wanting to inform themselves about PANS, and
- making the site open for ideas and opinion.

An integral part of the site is PANS-INFO that will contain pieces of information and commented links, i.e. links with information concerning the contents and the level of the expected visitor. Each piece should be accompanied by the name of an active nuclear physicist preferably accompanied by a picture and an E-mail address for further contact. Suggestions for links to be included are welcome.
PANS-INFO will run on local servers, one for each language, under the supervision of a local host who will be responsible for translations and contacts with "local" physicists. PANS-INFO will be started by the Munich team. Whenever possible local hosts in other countries will be added.
At the time of launching of the site (preliminary date December 15th) there will be an advertisement in Nuclear Physics News International. It should also be presented at conferences and through direct mailing. A press release is planned for PANS-INFO.

In the following discussion different opinions were expressed regarding the need for local hosts for PANS-INFO in different languages. The need for manpower was stressed in order to guarantee a well managed site and prompt response to questions.

Status of the NUPEX proposal

Heinz Oberhummer reported on the as yet unsuccessful proposal to the EU for funding of A web based Science Communication System for nuclear science and its applications. The continuation of the project was outlined. (Reproductions of transparencies are included in the appendix.) Genevier Edelheit informed those present about the French web site: www.laradioactivite.com.

Presentation of the Book (now published) and evaluation of the Book project.

Ray Mackintosh presented the book NUCLEUS – A trip into the heart of matter (ISBN 0 9537868 38) which has now been published both in Britain (Canopus Publishing) priced at £14.95 and the US (Johns Hopkins University Press). Great appreciation was expressed by everyone present. In addition Ray gave an account of the work leading up to the publication, starting in 1998, and the lessons to learn from it. His transparencies are reproduced in the Appendix.
Robin Rees explained that a simultaneous publishing in the US was necessary in order to generate the minimum number of copies required for a book of the present graphical quality. Also, reviews in large US media are needed for the marketing of the present book as well as a means to interest foreign publishers. Suggestions for suitable foreign publishers are welcome.

CD-ROM project.

Robin Rees discussed the possibilities to produce a CD-ROM for PANS based on the material in the Book and the Exhibition. As an example he presented Window on the Universe a CD-ROM produced in collaboration with the British National Space Centre and distributed with the Sunday Times. In that case 1.6 million copies cost approximately 0.5 M€.

Status of the Exhibitions

Alessandro Pascolini informed us about two recent exhibitions; one in co-operation with CERN on nuclear applications in medicine shown in Lisbon and Coinbra in Portugal and one on Enrico Fermi produced by INFN including also modern applications.
Concerning the PANS exhibitions the Italian one is being prepared for a two-week show in Bressanone (Brixen). Next year it will be shown in Florens and Pisa.
The German exhibition will hopefully be shown in Vienna during the coming year.
The French exhibition is on show in the Palais de la Decouvert until March of next year. It will then travel to Caen and Nantes.
A CD-ROM of the exhibition (the virtual exhibition) in French, German and Italian will appear shortly, produced by INFN.

A time for dialogue.

Ray Mackintosh pointed out the need for opening up a dialogue with the general public. Instead of Public Awareness of Nuclear Science what we need is a Dialogue with the Public on Nuclear Science. Two web sites for further reading are: www.parliament.uk/post/report.htm (Report No. 153) and www.royalsoc.ac.uk (Science in society).

Questionnaire on nuclear science.

Istvan Uray presented a questionnaire he has used with students and pupils 18-20 years old asking them about their interest in nuclear science. In his opinion the results show that the primary interest lies with applications and questions related to radiation protection. The questionnaire and the response obtained so far is included in the Appendix.

On a future Energy project.

The discussion on a future Energy project was introduced by Adriaan Van der Woude. He pointing out that a possible doubling of the population of the world together with a general increase in the GNP/capita will lead to increased energy demands. He then introduced the invited speakers Alex Bradshaw, Peter Hodgeson and Claude Stephan.

Alex Bradshaw concluded his talk on the energy demands of the future by recommending PANS to

- Take the offensive, but be conciliatory, particularly to green protagonist.
- Take "green" arguments seriously; admit that the complete fulfilment of world energy requirements via renewables would be highly desirable, but emphasise that it is simply utopian.
- Stress the importance of a future mixed energy scenario using renewables, fission and fusion, as appropriate.
- Admit that there are serious problems with conventional fission power stations: reactor safety and long-term storage of nuclear waste.
- Stress the importance of the development of inherently safe reactor types and of transmutation (but do not claim that there are 100 % solutions).

Alex Bradshaw´s transparencies are reproduced in the Appendix.

Peter Hodgeson stressed the importance of entering into debate. According to him the present lack of serious discussion on how to meet the future energy demands was maybe the biggest problem. However, his own experience, although very large, was a very mixed one.

Claude Stephan made a particular point of the fact that we know from history that from the introduction of a new energy technology it takes not less than 50 years until it contributes significantly to the total energy supply. His conclusion was that only the major energy sources used today are going to contribute significantly in the next 50 years. He also informed us about a book published recently by the French Physical Society about the situation regarding energy for society in France.

In the following lively discussion there were strong arguments put forward in favour of launching, possibly in a wider context, an Energy project tackling the full issue concerning how to meet the future energy demands of our society. Strong arguments were also advanced as to why PANS ought to limit itself to the question of nuclear energy, as well as in favour of PANS not getting engaged in any dedicated energy project al all, but bring up the energy issue in our other activities whenever appropriate.

How to proceed

A working group was set up to investigate more deeply the possibilities of an initiative aimed at increasing the public trust in nuclear science by entering into a dialogue with the public concerning nuclear energy. The group should report to PANS at the next regular meeting. As members were appointed: Jim Al-Khalili, Finn Ingebretsen, Helmut Leeb (convenor), Bernard Tamain and Jan Vaagen.

Heinz Oberhummer reported on discussions he had had with the team working on the PANS web site, in particular regarding the interrelation of NUPEX and PANS-INFO. He presented plans for NuPEX-New. Transparencies are reproduced in the Appendix.

A second working group was appointed with the task to make a proposal for a CD-ROM based on the material in the Book and the exhibitions. The members are Ray Mackintosh (convenor), Gunnar Ohlén, Alessandro Pascolini and Robin Rees. The group was asked to present a proposal including a cost estimate to PANS at the next regular meeting.

Time for the next meeting.

The next regular meeting of PANS will be held June 7-8, 2002, in Vienna.

Appendix

STATUS OF NUPEX-PROPOSAL

A web-based Science Communication System for nuclear science and its applications

NUPEX
(NUclear Physics EXperience)

Submission of proposal: 21. 06. 2001
Response by EC: 13. 08. 2001

Objectives

- Creation of a web-based science communication system (webSCS) for communicating nuclear science and its applications to the public
- Primary target group: Teachers as science communicators facilitating their work
  Secondary target group: high-school students and public
  - High quality one-stop shop on the Internet for contents in nuclear science in at least 5 European languages

Description of work

- Analysis of the needs of the target groups, creation of knowledge tree
- Set up of didactical model for the webSCS
- Designing and programming of the web-based science communication system
- Collecting, structuring, evaluating of existing and creating new content
- E-publication of content in at least 5 European languages
- Dissemination

Web-based science communication system

(1) Homepage leading to the different functional areas
(2) Repository for a structured and commented collection of multi-media educational and outreach material
(3) Link Collector with hyperlinks to educational and outreach websites
(4) Learning Content Managing System (LCMS) on the Internet with modular content structure incorporating integrated authoring, learning, teaching and organising
(5) Communication System: Bulletin boards, dedicated web forms for the services "Ask an expert", "Ask a teacher".
(6) Multimedia and interactive elements created by educational designers.

Response by evaluators

Summary

Positive aspects:

- Proposers are strongly encouraged to submit again in the next call
- Proposal could be of high value

BUT ...

Negative aspects:

- More detailed description of didactical model

NUPEX new:
Experts (science mediators) as partners, standard terminology and methodology of didactics

- More attention to implementation of dissemination

NUPEX new:
Better integration with existing structures, clear commitments of partners, list of measures with cost, find appropriate partners

- Detailed management structure

NUPEX new:
Start from scratch, implementation of a standard management structure, correct with experts

NEW COLLABORATION STRUCTURE

- ORGANISATION:
  Objectives, goals, methods, co-ordination, controlling, evaluation

- DIDACTICAL MODEL:
  Requirements of the public and especially schools, teaching projects, write-up

- CONTENT:
  Co-ordination of small group experts and external links

- GRAPHICS DESIGN & MULTIMEDIA:
  Design of websites, educational illustrations

- INFORMATION TECHNOLOGY:
  Set-up of a Learning Content Management System (LCMS)

- DISSEMINATION:
  Contacts to schools, teachers, mediators, national agencies, ...

Working Schedule

15. 11. 2001 – 15. 12. 2001:
Work-out of improved concept: Didactical model, dissemination, management, & collaboration structure

15. 12. 2001:
Intermediate report on concept of NUPEX-new

15. 12. 2001 – 15. 01. 2002:
Response of partners

January 2002 (tentative):
Call “Improving Human Potential: Raising Public Awareness”

January – April 2002:
Finalisation of proposal

April 2002 (tentative):
Deadline for proposal

NUCLEUS
A trip to the heart of matter

Presented in London, November 9th, 2001, by ---
Ray Mackintosh Physics Department, The Open University, Milton Keynes MK7 6AA, UK, r.mackintosh@open.ac.uk

Reporting a collaboration with:
Jim Al-Khalili, University of Surrey, UK, J.Al-Khalili@surrey.ac.uk
Björn Jonson, Chalmers University of Technology, Sweden, bjn@fy.chalmers.se \\[2 mm]
Maria Teresa Pena, IST, Portugal, teresa@t-rex.cii.fc.ul.pt

NUCLEUS
Reminder of strategic decisions

- Restricted aims; we cannot hope to cover all the aims of PANS with a single book.
- Focussed target; consistent level and assumed background
- Produced from scratch; no usage of existing materials which would compromise aims.
- Visual; high production standards

Revised Contents

NUCLEUS:
Reminder of tactical decisions.

- No equations. (Any few exceptions segregated into boxes.) Implicit mathematical skills involved in graph reading borne in mind.
- Stress that nucleus is a QM system. (Heisenberg UP and Schrödinger's cat sell books!)
- Narrative thread with an astronomical connection.
- Human interest content (e.g. lives of physicists) and some history balanced with examples from the present frontier.
- Nuclei as part of texture of modern world; medicine. Nuclear physics of nuclear power.
- Nuclear physics is world-wide activity. Balance between European and global contributions.

NUCLEUS:
Things we have to accept

- We will omit the favourite topics of many people..
- We will omit mention of some people's labs. Can't be helped.
- Everyone has their own idea of where to put the line between being understood and being rigorous, everyone has their pet area where they insist on super-rigour. Tough! We shall offend some people. So be it.
- We tried to cover as many countries as possible... some were omitted for seemingly trivial reasons (alas poor de Hevesy)
- We will try to be truer than usual to history, but, inevitably, things get simplified (poor Iwanenko!)

NUCLEUS:
How we operated

- we were like an `OU course team'
- global decisions
- drafting -- probably someone has to take the lead... unified style..
- versions, use of `journalists' (don't)
- art and graphics
- design
- production (ask Robin)

NUCLEUS:
Constraints, problems and compromises.

Having a publisher liberated us!

- time constraints
- choice of topics, choice of figures, (US co-publisher)
- choice of labs illustrated... we tried to be fair!
- editor makes late changes
- getting figures right (valley of beta stability!)
- distribution of low-res pictures... proof reading.
- ….

Some 3000 emails later …NUCLEUS!

Questions we have to answer

- Is there a need for a book/CD-ROM on ENERGY ?

  At the level of 14-17 year high school pupils

  More popular

  Less popular

- If so what should be the content ?

  - ✓ Background information :

    - Energy demand , now and future
    - Present energy sources
    - Availability
    - Environmental effects
    - Risk, general discussion
    - Radioactivity

  - ✓ Energy saving

  - ✓ Future energy sources

    - Traditional (coal, oil, gas)
    - Nuclear (fission, fusion)
    - Renewables(sun, wind, biomass, hydro)

  - ✓ Economics

  - ✓ Conclusion

- How to proceed?

  - ✓ Set up a working group (3-5 persons)
    - Make inventory of existing material
    - Establish contacts
      - Gilbert Fayl, European Commision
      - GREPS group/France
      - Others
    - Evaluation
    - Make proposal
    - Discuss proposal with NuPECC and NPB/EPS
    - Discuss proposal with other interested groups

Take the offensive, but be conciliatory, particularly to green protagonists.

Take "green" arguments seriously; admit that the complete fulfilment of world energy requirements via renewables would be highly desirable, but emphasise that it is simply utopian.

Stress the importance of a future mixed energyscenario using renewables, fission and fusion, as appropriate.

Admit that there are serious problems with conventional fission power stations: reactor safety and long-term storage of nuclear waste.

Stress the importance of the development of inherently safe reactor types and of transmutation (but do not claim that there are 100 % solutions).

Year of birth:

Your task is to surf the WEB and find homepages containing information on „nuclear subjects". According to your own interest, indicate your priorities among the following main subjects by numbering!

- Number 1 should indicate the subject that you are most interested in
- Put the X sign next to the subjects in which you have no interest at all!)

..... Fundamental physical knowledge about atoms
..... Fundamental physical knowledge about the atomic nucleus
..... Fundamental physical knowledge about elementar particles
..... Characterization of different types (? , ? , ? , X, fission, fusion) of radiation
..... Instrumentation for experimental investigation of the atomic world
..... Nuclear knowledge for understanding the development of the universe
..... Nuclear knowledge and technology applied in other sciences
..... Peaceful nuclear energy production (nuclear reactors)
..... Nuclear energy serving destruction (nuclear weapons)
..... Nuclear knowledge and technology in industry and agriculture
..... Present state of radiation biology
..... Medical use of nuclear knowledge and technology
..... Health risks of nuclear technology
..... Environmental benefit of nuclear technology
..... Environmental risks of nuclear technology
..... Social benefits of nuclear technology
..... Social risks of nuclear technology

Other subjects I would want to read about, but not listed:
1., ...
2., ...
3., ...

NuPEX-New

Objectives

• Creation of a web-based science educational system for nuclear science and its applications
• Primary target group: teachers as science communicators facilitating their work
• Secondary target group: high-school students and public
• High quality one-stop shop on the internet for contents in nuclear science in at least 5 European languages
• Scientific dialogue

Unique selling proposition

• No other existing concept:
    • European dimension
    • Community added value
• No other existing content:
    • There are hardly any integrated experiments
    • Content/didactical structure
    • No educational collection for nuclear physics
• Dialogue
    • Interaction
    • Teacher‘s summerschool

Tasks

1. Didactical Model – Didactical expert
2. Content
3. Artwork, Programming, Database (LCMS)
4. Management and Dissemination
5. Business Plan

Working Plan

• Work-out of a new concept (10.11.2001 - 15.01.2002)
• Collaborative structure (15.01.2002)
• Call EU (January 2002)
• “Business plan“/evaluation/surveys (March 2002)

PANS-INFO and NUPEX –

What is different, what is common?

- NuPEX is the educational tool of PANS-INFO
    - PANS-INFO a web-based information and presentation system
    - NuPEX is a web-based educational system
- Partially same target group
    - NuPEX has specifically teachers and pupils as target group
    - PANS-INFO has additionally scientists and the general public as target groups
- Common corporate identity and design
- Dialogue (interaction, forum, e-mail...)
- Web-based content management System
- **n European languages**

Pros and Cons of merging PANS-INFO and NUPEX

- Management synergy
- Content synergy
- Dissemination
- No cons

Thank you for your attention.
And now: please help!
We need national responsible representatives
We need an didactical expert