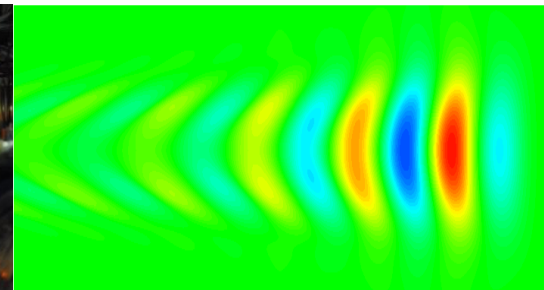
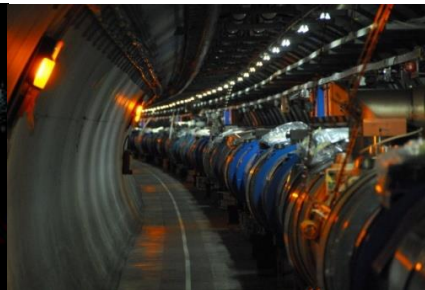
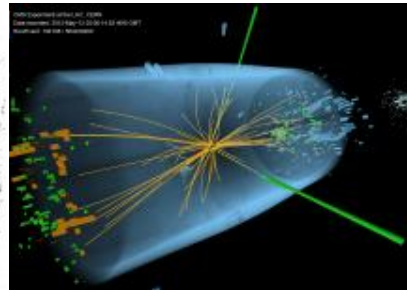
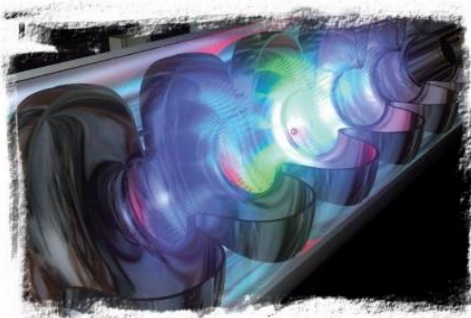




IUPAP WG 14

DISCUSSION TOPICS on PROMOTION of ACCELERATOR SCIENCE and TECHNOLOGY

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Context and Suggested Media Outreach:

CONTEXT:

Accelerators have led to several discoveries in physics, biology, medicine, etc.. Accelerators have also advanced healthcare , global communication and technologies for human security. Highlighting to the public - especially to grade 9-12 bright students in high school – the major steps that have allowed this, will be critical.

- SUGGEST:

- A public media face e.g. a YouTube regular chat series , hosted by a permanent distinguished accelerator scientist and bringing in guests from around the globe for an half an hour chat on various aspects of the science and technology of beams.
- We can call this YouTube series by an attractive name: say, “Parlez-vous Beams?” or something else similarly attractive.
- Best if it is centrally administered by a internationally reputable organization e.g. CERN.

Context and Suggested Media Outreach: (cont'd)

- We can also organize a symposium (in conjunction with ICFA, ICUIL, IAEA?)
- A series of documents, web articles for general public

Where we review:

- Major progresses that have been enabled by accelerators
- The speakers should be eminent representatives of the various fields
 - solid state physics
 - biology
 - cancer therapy
 - high energy physics
- present status and challenges, requirements

Context and Suggested Media Outreach: (cont'd)

- We can also organize Public Lectures through APS, EPS, IoP , etc.
- Outreach visits to high schools from major accelerator laboratories speaking to 9-12 graders (probably already done at present)
- Develop a software package of games etc. that illustrate the operation of accelerators and physics and engineering of charged particle beams. This may require collaborating with suitable graphic design and video industry etc.
- Promotion of applications of accelerators (with a particular view to less developed countries). Organization of workshops on accelerator applications possibly jointly with other committees/institutes)

Context and Suggested Media Outreach: (cont'd)

This series of 30 min chats/interviews and/or symposium etc. should bring out the major progresses in accelerators science and technology that have enabled these discoveries and brief the audience on their present status and challenges e.g.

- The basics
- Linear accelerators and their evolution
- Circular accelerators and their evolution
- Cooling techniques
- Low emittance lattices
- Free electron lasers
- Superconducting magnets
- SC RF
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Applications for dissemination

- Photon Sources (synch. Light sources, FELs, Compton scattering, gamma factories..)
- Neutron Sources (spallation sources, ADS, Waste Transmutation..). (Jointly with IAEA?)
- Ion beam analysis for Arts, Forensics, etc. (e.g. see forthcoming <https://indico.ictp.it/event/9832/> with IAEA and ICTP)
- Radioactive Ion Beam sources
- Medical Accelerators (proton and ion therapy, high energy electrons, FLASH therapy) (Jointly with AC4: International Commission on Medical Physics? see for example development of robust accelerator design for conventional radio-therapy <https://indico.cern.ch/event/560969/>)
- New acceleration techniques and their implications for compact photon and proton/ion accelerators for application (jointly with ICFA-BD panel?)

Additional topics for dissemination

- Why a career in Accelerator Science?
- Challenges in Accelerator Science
- Industries orbiting around accelerators (who are they? what are they looking for?)
- The latter could be mostly covered in our web page and use of the social media (IUPAP has now a LinkedIn account, Gianluigi is checking whether this could be used to post information about Job Openings in Accelerator labs and could be a way to reach out and attract interest from younger colleagues).