

ICO's election as an ICSU "International Scientific Associate"

- Optics
- ICO, ICSU, IUPAP, ICTP and how they work together
- The appropriate status for Optics in ICSU
- Future challenges

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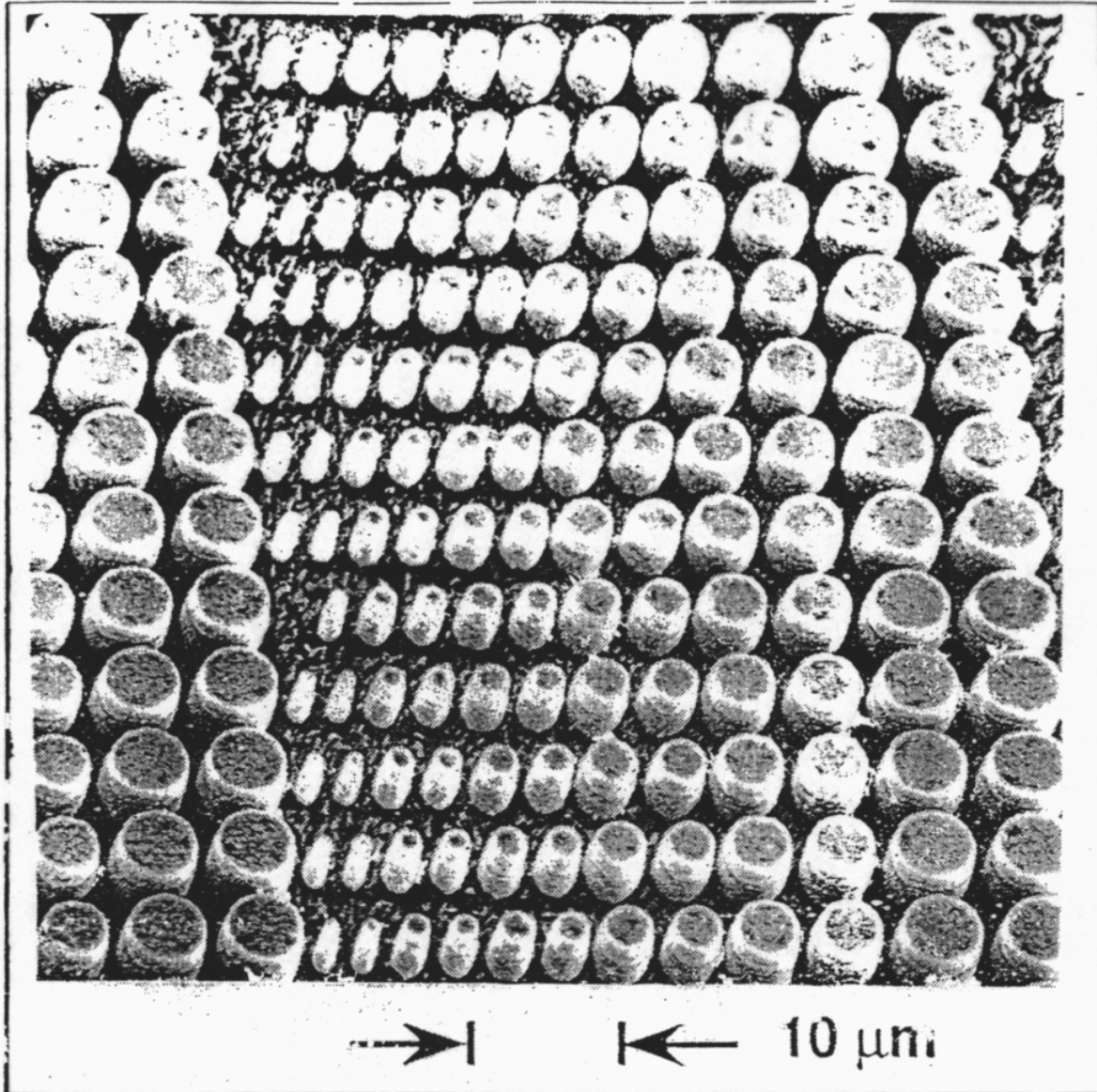
Charles Fabry, 1867-1944,
Fabry-Perot interferometer, 1892
ICSU President, 1936-1944



A new status for ICO: what does this change entail ?

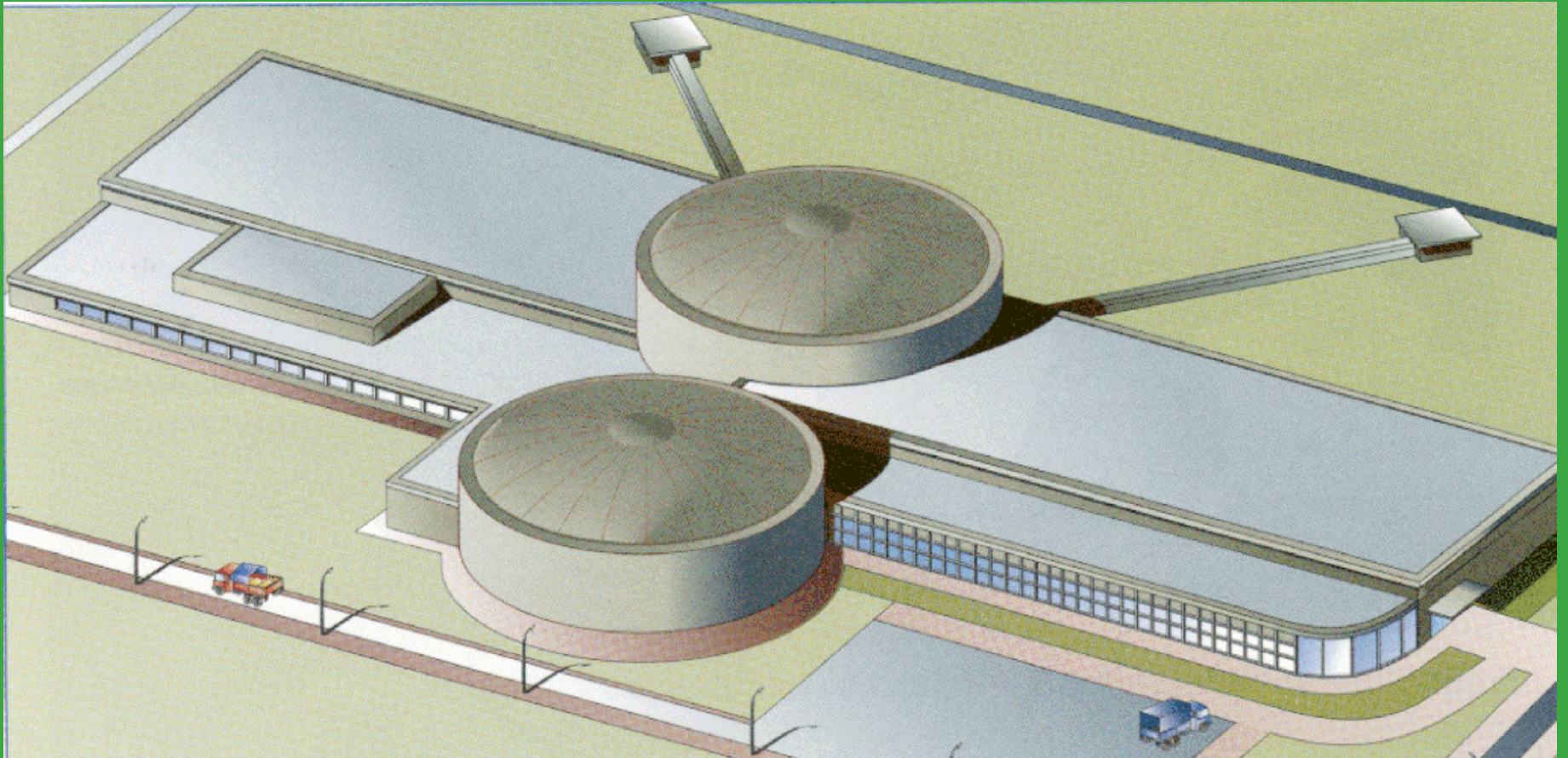
- Recognition
 - for ICO and its members
 - for Optics
- and new opportunities
 - still to be explored



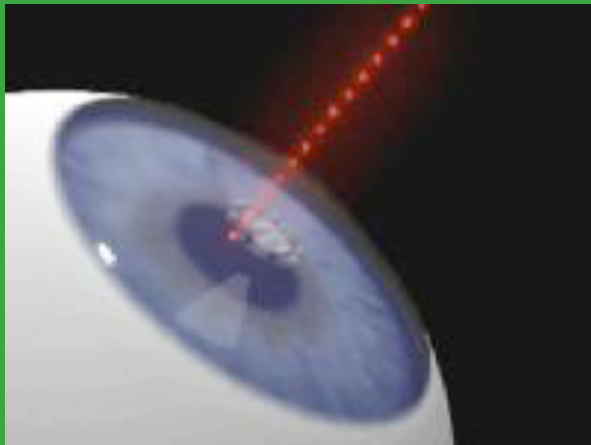


2 millions lasers on 1 cm²
J. Jewell, Bell Labs, 1989

Optics for energy: Megajoule lasers



Femtosecond laser corneal surgery



<http://www.snof.org/chirurgie/femtoseconde.html>



A time of exceptional growth for Optics, triggered by the laser

- Optics for Communications, Information Technology (storage, displays, ...)
- Optics for health and the life sciences: surgery, medicine, biology, biotechnology
- Optical sensors, lighting, energy
- Optics for defense and aerospace, surveillance, night vision
- Optics in manufacturing and quality assessment



The Optics market : multi billion-figures

- Optoelectronics
- Lasers
 - Laser Machining
 - Laser diodes
 - Biomedical lasers
- Sensing, machine vision
- Optical communications (coming back)
 - cables
 - Optical switching
 - Wavelength multiplexing equipment
- Optical instruments for microelectronics (steppers)
- Ophthalmic optics



Relation to upstream research

- Optics and Photonics is a diversified, dilute but connected field in engineering, technology, economic applications
- including in its relation to academic research in the physical sciences (e.g. Nobel Prizes in Physics 1997, 2001, 2005, Chemistry 1999)



ICSU in 31 words

- Universality of Science: non discrimination and equity
- Building scientific capacity through international programmes to address the ICSU “Major Issues”, such as energy, sustainable development, CIT, nanotechnology, molecular biosciences
 - (Optics is relevant!)



ICSU members

- General organization
 - ICSU, « the International Council for Science », has two categories of Full Members :
 - o International Unions (such as IUPAP)
 - o National Members
 - and two categories of Associate Members:
 - o International Scientific Associates
 - o National Associates



ICO's historical relations to ICSU

- Since first created in 1947, ICO has been an affiliate commission of ICSU's member union IUPAP.
- ICO is the only « second rank » body in ICSU that operates like an ICSU Union (Territories as members paying fees)
- It emphasizes the ICSU mobility rules and sees ICSU as the only legitimate body to help its members enforce them.



ICO and ICTP

- ICTP is a home to many of the interactions between ICO, IUPAP and ICSU.
- ICO/ICTP activities:
 - the Winter College in Optics, since 1993
 - the ICO/ICTP award
 - the LAM network events
 - TSOSA



What has just changed ?

- Optics has its roots deep in Physics, the status of an IUPAP Affiliated Commission is appropriate for ICO. This is here to last and must be stressed and recognized, in particular in the present situation where capacity building in sciences in general and in the physical sciences in particular is challenged
- However, in addition, Optics is seen more and more as a separate discipline
 - in its interactions with other disciplines (life sciences, chemistry and materials, ...)
 - and in its applications (telecom, optical engineering)
- Many opticists do not see themselves as physicists – and conversely.
- Therefore, it is appropriate for ICO to have an additional status as an ICSU International Scientific Associate



How it happened in practice

- The ICO General Assembly has approved the project and appointed the Bureau to proceed.
- Application sent to ICSU, February 2005.
- Positive decision made by ICSU General Assembly, October 2005 after application has been endorsed by 9 ICSU members.



The International Commission for Optics (ICO)

- The primary international group that coordinates the diffusion and advancement of scientific and technical knowledge in the broad fields of optics : make contacts, provide expertise, offer neutral international character
- 44 territorial members
- 6 society members: OSA, SPIE, EOS, IEEE/LEOS, OWLS, LAM



ICO priorities and actions

- **Priorities:**
 - the regional development of optics
 - education and training
- **Actions:**
 - major meetings (every 3 years), topical meetings, schools
 - awards, fellowships, lecturerships
 - newsletter, books



Thanks

- IUPAP and its Past-President, Y. Petroff
- All current ICSU members who supported the application, including the ICO Bureau members who were instrumental in generating those endorsements
- ICTP and Gallieno Denardo for the long-standing collaboration with ICO
 - and for hosting this celebration!



What will change next ?

- Participate in ICSU, be an actor in their programs, help build future programs: there is more work for future volunteers from ICO, TSOSA and from all ICO stakeholders.

ICO, the place where the world of Optics meets.

