

The magic of glass

✍ L. Cifarelli, G.C. Righini 📅 15-11-2022 🔗 <http://www.primapagina.sif.it/article/1605>

Glass is a complex material with unique properties, that make it ubiquitous and indispensable in everyday life. Natural glass exists on the Earth since millions of years, and its handcraft processing to create tools and weapons dates back to the late Stone Age (tens of thousands of years ago). The discovery of how to make glass was probably made in the Bronze Age towards the end of the third millennium B.C. From then on, glass objects have been an important part of human life and in the last centuries they have also been essential for the development of modern science.

Microscopy, astronomy and, more recently, fibre optics data communications and optoelectronic displays are examples of academic and industrial research fields whose progress has been made possible only by the availability of special glasses. Moreover, glass is a fully recyclable material. All this may well explain why International Glass Associations proposed - and the General Assembly of the United Nations unanimously approved - to declare 2022 the International Year of Glass (IYoG).

On the official IYoG2022 web page, one can find an amazing list (reproduced below) on what glass gives to society, thanks to its unparalleled versatility and technical capabilities, and on how in its many guises glass has fostered innumerable cultural and scientific advancements:

- *Glass is the main conduit for information in our knowledge-based society. Glass optical fibers have led to a global communications revolution; they are the backbone of the internet. Glassmakers have given us touch-sensitive covers for our mobile phones, revolutionizing the way we communicate.*
- *Glass is the chemically resistant container material for many of today's life-saving medicines and is playing its part in the world's quest to deliver a vaccine to fight the COVID-19 pandemic. Strengthened glass containers have dramatically improved the reliability of the EpiPen treatment of life-threatening anaphylactic shock from severe allergic reactions.*
- *Bioglass compositions have advanced health care with their ability to: integrate with human bone; stimulate the human body's natural defense to heal flesh wounds; aid tissue design and regeneration; and resolve hearing and dental issues.*
- *Glass sheets support solar cells and give clean energy; glass fibers reduce our carbon footprint by strengthening wind turbine blades, by insulating our homes and through carbon capture and sequestration (CCS); the vitrification of hazardous waste is making nuclear energy safer.*
- *The evolution of glass optics and optoelectronics mean that the James Webb space telescope can study the first moments after the big bang and expand understanding of the Universe.*
- *Glass melting is being de-carbonised and glassy products are being safely recycled.*
- *Archaeologists are learning more about ancient trade routes and the politics of raw materials.*
- *Glass artists across the globe have given humankind an awareness of this wonderful material including its remarkable methods of fabrication, inherent beauty, and ability to capture and display nature's full spectrum of color.*

This is the reason why the Italian Physical Society, on the occasion of its 125th anniversary, has planned to celebrate the IYoG2022 with a special international interdisciplinary symposium which will take place in the beautiful premises of the Bologna Academy of Sciences and whose programme will range from history, to physics, chemistry, astronomy, culture heritage and art. In addition to the Academy, sponsors of the event are also the University of Bologna and the Italian National Institute of Nuclear Physics (INFN).

So an event not to be missed!

Passion for Knowledge - THE MAGIC OF GLASS

Bologna, Italy - 16 December 2022
Sala Ulisse, Accademia delle Scienze dell'Istituto di Bologna, Via Zamboni 31
from 9:00 AM to 19:00 PM

Deadline for registrations: 12 December 2022

Registration form (to be sent to sif@sif.it)

Webcast will be available. Courtesy of INFN Multimedia Group.



Luisa Cifarelli - Professor of experimental physics at the University of Bologna. She has carried out research in subnuclear physics and astroparticle physics at the major European laboratories. Member of the Academia Europaea and the Academy of Sciences of Bologna, honorary president of the Italian Physical Society, she has been president of the European Physical Society and of the "Enrico Fermi" Historical Museum of Physics and Research and Study Center in Italy.



Giancarlo C. Righini - Senior associate and former research director at "Nello Carrara" Institute of Applied Physics (IFAC) of the National Research Council (CNR). He has published more than 500 papers on guided-wave optics and glassy materials for photonics. Meritorious member of SIF and Fellow of EOS, Optica, SIOF and SPIE, he was vicepresident of the International Commission for Optics and director of the Materials and Devices Department of CNR and of the "Enrico Fermi" Historical Museum of Physics and Research and Study Center.