



Enlightening Mind

Date

Starting from May 16th, 2022

Scientific Committee

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Summary. Enlightening Mind is an outreach project to share notions, ideas and concepts of optics and the science of vision with the whole of society. It is also a research project to find contemporary forms to communicate science through the synergy between multiple institutions. It presents new languages and hybrid modes of expression that cross multiple disciplines, with a particular focus on the world of art.

Keywords: light, vision, optics, optometry, neuroscience, applied psychology, physics, art, optical illusions, perspectives, contamination, interpretation, language.

Enlightening Mind is more than an exhibition, it is an outreach and a research project to spread a culture of physics and to share an enriching experience with the whole of society, for common growth. The idea of a projects capable of giving a contemporary interpretation to the request for the spread of scientific culture was born in a modular way, starting from individual initiatives generated by the collaboration and comparison between multiple bodies and research institutions. It is promoted by the Department of Physics and Astronomy, driven by the teachers of the degree course in Optics and Optometry of the University of Florence and by the CNR National Institute of Optics in collaboration with the Idis Foundation – City of Science Naples, CNR Institute of Applied Sciences and Intelligent Systems “Eduardo Caianiello” and the Department of Neuroscience, Psychology, Pharmaceutical Area and Child Health of the University of Florence.

The first step of the project is the permanent exhibition at the Department of Physics and Astronomy of the University of Florence, inaugurated on the Interna-

tional Day of Light, May 16th, 2022, followed by the second section the year after (Fig. 1). The entire path is dedicated to light and vision science by several optical phenomena and many fascinating effects related to the human visual system. It includes works of art, panels with visual effects of perceptive disorientation, historical optical and optometric instruments, material properties, optical illusions and much more. First of all, we need to be aware of one thing: optical illusions are not a mistake made by our visual system. The term “illusion” is often associated with the term error or misstep but, in actual fact, they are brilliant experiments to enlighten the complex mechanisms of human perception, in other words to highlight the fact that human beings are not machines. Our visual system processes the input received by our eyes for a fast and useful perception of the world, as dictated by natural selection. If this were not the case, we would not be able to perceive the three-dimensionality of objects. Perspective and the constancy of colour would not exist, and these would change continuously throughout the day.

The main idea of the exhibition is to develop outreach activities inside the research centres, hosting visitors mainly with tours guided by researchers and scientists. The beginning of a journey that travels from the corridors of the Department through numerous venues, changing form and mode of expression but always with the aim of making science an element of daily debate in society. Why host an exhibition inside an academic building that is usually closed and inaccessible to the public? The answer to this question stems from the awareness of living in a moment of profound change and from the stimuli that have animated this transversal project. “Reinterpret” and “contamination” are the key words. Entering unknown places and following a narrative that takes you to the laboratories is an experience that raises awareness and brings society closer to the world of research in a two-way path of enrichment that generates knowledge.

Enlightening Mind combines different expressive languages and perspectives which draw curious glances from multiple professionals, such as artists and scientists, each giving their own interpretation of common phenomena which appear closer and more comprehensible to each of us thanks to the union of multiple perspectives. For this reason, there are no captions or explanation in front of the panels of the exhibition. Everyone gets to enjoy their own experience and has the possibility to explore it in a modular way on multiple levels of in-depth analysis. The exhibition is divided into thematic areas – optics, retina, vision, colour and perception – represented by specific icons that are easily recognisable throughout the entire journey. For each work, a distinctive sign indicates which cognitive path that specific optical illusion can be associated with. In addition, each panel has a Qrcode linked to an in-depth information box, which allows visitors who are interested to find an explanation of the phenomenon and a bibliography with peer-reviewed articles for further in-depth analysis.

We are pleased to acknowledge that, among the illusions, there are dozens of artworks kindly offered by Gianni Sarcone, op-art artist (of optical art), interna-



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Forme impossibili, anamorfosi, effetti 3D, sfondi e illusioni di contrasto, oggetti in movimento, figure bistabili: *uno straordinario viaggio di disorientamento percettivo della realtà, nel mondo delle illusioni ottiche.*

“Illuminare la mente” è ciò a cui mira questa mostra, per scoprire come funziona il sistema visivo.

Vedere e non solo guardare, *perchè non c'è niente di più reale di un'illusione.*

Con opere di **Gianni A. Sarcone**, artista op-art ed esperto internazionale di percezione visiva
Honor Guest: **Fabrizio Corneli**

dal **16.05.2022**
DIPARTIMENTO DI FISICA E ASTRONOMIA
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UNIVERSITÀ DEGLI STUDI DI FIRENZE | DIPARTIMENTO DI FISICA E ASTRONOMIA | FONDAZIONE IDIS CITTÀ DELLA SCIENZA | CNR-INO ISTITUTO NAZIONALE DI OTTICA | ISTITUTO DI SCIENZE APPLICATE E SISTEMI INTELLIGENTI

progetto espositivo a cura di: Dipartimento di Fisica e Astronomia dell'università degli Studi di Firenze, Fondazione Idis Città della Scienza, CNR Istituto Nazionale di Ottica, CNR Istituto di Scienze Applicate e Sistemi Intelligenti

Figure 1.

Florence and the history of glasses: between fake news and technological progress

tional expert in visual perception, and author of research and several books on these topics. In addition, two American artists, Cara Wood Ginger and Gary W. Priester, gave us their artworks to discuss and highlight birefringence and stereopsis. Lastly, the permanent exhibition includes an original interferometric colour photograph taken by Gabriel Lippmann, Nobel prize in Physics in 1908 for this novel photographic method. Beside the permanent exhibition, Enlighting Mind temporarily hosts a few contemporary artworks. The artists who have shown their artworks within the exhibition path in Florence include Marina Apollonio, Stella Battaglia, Fabrizio Corneli, Elisa Leonini, Gianni Miglietta and the street artist Square.

Enlighting Mind is an English expression, “Illuminating the mind” and this is what this exhibition aims to do, experimenting with new languages of scientific communication to generate new experiences for collective growth.