

SHARING AHEAD 2022 - Public communication of astrophysics across Europe



Report of Contributions

Contribution ID: 1

Type: **not specified**

AHEAD2020: an overview

Presenters: GEORGANTOPOULOS, Ioannis (National Observatory of Athens, NOA); PIRO, Luigi (National Institute of Astrophysics, INAF-IAPS)

Session Classification: Communicating H2020 projects

Contribution ID: 2

Type: **not specified**

The H2020 Opticon RadioNet Pilot Project: Overview, challenges and lessons learnt from its communications and outreach activities

The H2020 Opticon RadioNet Pilot (ORP) project brings together the well-established ground-based astronomy community, in an effort to support and develop seamless access to radio and optical facilities in an efficient, co-ordinated and future-looking programme. It offers access to an unrivalled set of major and specialised observatories across Europe (and around the world) covering the optical, infra-red, sub-mm and radio wavebands to open the way to new discoveries.

Due to both the international nature of its consortium and the different audiences targeted (astronomers, policy makers, general public), ORP communications and outreach initiatives rely on a multi-channel strategy with targeted messages and actions to reach the identified audiences that is optimised to maximise dissemination efforts at local/national, European and international level to maximise impact.

In this talk, the on-going efforts related to ORP communications and outreach will be presented as well as the challenges and lessons learnt so far.

Presenter: RIVERO GONZÁLEZ, Jorge (Joint Institute for VLBI ERIC - JIVE)

Session Classification: Communicating H2020 projects

Contribution ID: 3

Type: **not specified**

Citizen Science in ESCAPE (European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures)

ESCAPE (European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures) brings together astronomy, astroparticle and particle physics communities to establish a single collaborative cluster of next generation European Strategy Forum on Research Infrastructures (ESFRI) facilities. This links the data-driven research of ESFRI projects to the wider European Open Science Cloud (EOSC), addressing their Open Science challenges according to FAIR (Findable, Accessible, Interoperable and Reusable) principles.

One of the core aspects of ESCAPE is Engagement and COmmunication (ECO), aimed at developing and managing scientifically-driven crowdsourced data mining via mass participation experiments. This talk will provide a brief overview of ESCAPE, ECO, and the various Citizen Science projects that have been created and supported as part of this work.

Presenter: PEARSON, James (The Open University)

Session Classification: Communicating H2020 projects

Contribution ID: 4

Type: **not specified**

Science communication of AHEAD2020 through the social media and webpage

I will present the public outreach activities of the AHEAD2020 through the webpage and the social media accounts. The triplet “WHAT-WHO-HOW” will be analyzed in the context of the project. In particular, I will focus on the communication goals of the project, who is the audience and how this is achieved through a dedicated plan for the different target populations. Of high importance is the interaction with other parties, building and maintaining strong relationships. I will give some examples of the existing AHEAD2020 solid relations, while I will emphasize the need to strengthen the collaboration among all the institute members of the AHEAD2020 and establish new links, discussing several strategies.

Presenter: POULIASIS, Ektoras (National Observatory of Athens, NOA)

Session Classification: Communicating H2020 projects

Contribution ID: 5

Type: **not specified**

There is not just one Cosmos - Involving, connecting and story-telling in Multimessenger Astronomy

The communication and outreach activities of the European Gravitational Observatory (EGO) in recent years have been inspired by some general ideas about the meaning and value for the society of the scientific revolution related to gravitational waves and Multimessenger Astronomy. Indeed these initiatives have been oriented by the idea that the achievements of scientific knowledge always have a 'counterpart' in our way of conceiving the human being's place in the Cosmos and thus a reflection in a societal, aesthetic and, in a broader sense, cultural sphere. Another aspect, explored and recounted in various ways, is related to the connection of observatories or antennas (e.g. gravitational antennas) with their host environment (on the Earth, underground or under the sea...), that can drive useful applications for the society and other research sectors. Then a further inspiring principle has been the particular value, in terms of inclusion, but also of enhancing the research tools, of multi-sensory data analysis, particularly in the context of multi-messenger astronomy. We will present several case studies and examples, showing how communication and outside representations of MMA can find connections with the other 'cosmos' of culture, art, society and even of our inner world, reflecting on the special meaning and effective impact of these communication, outreach or citizen science actions.

Presenter: NAPOLANO, Vincenzo (European Gravitational Observatory, EGO)

Session Classification: Communicating H2020 projects

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Type: **not specified**

Public Outreach Activities of the Max Planck Institute for Extraterrestrial Physics

The Max Planck Institute for Extraterrestrial Physics (MPE) belongs to the Max Planck Society (MPG) and is one of the most important institutions for astrophysics in the world. In the AHEAD2020 project, the X-Ray Optics Joint Research Activity is led by head of X-ray test facility PANTER of MPE's high energy group. At MPE, we offer a wide range of public outreach, including a bilingual website with recent research news, Intranet or guided lab tours. Together with surrounding institutes, we participate in Open House Days and an annually Girls Day. One key event was the Nobel Prize for Physics 2020 for Reinhard Genzel which caused an extensive response in media, followed by various public talks and interviews. We also expanded our presence on Social Media (Twitter, LinkedIn). To cope with challenges caused by the pandemic, talks, meetings and conferences were realised virtually. Soon, we plan to extend our Social Media activities (Instagram/YouTube) and work on collaborations with schools.

Presenter: HERRMANN, Tobias (Max Planck Institute for Extraterrestrial Physics, MPE)

Session Classification: Communicating H2020 projects

Contribution ID: 7

Type: **not specified**

Activities of the Visitor Centers of the National Observatory of Athens

Our activities focus on elementary and high school students from schools throughout Greece. Our night activities focus on general audience using the historical Newall telescope and other telescopes of Penteli's astronomical station. We also organized special events focus on high-energy astrophysics like X-ray schools and other AHEAD activities.

Presenter: KOUTOULIDIS, Lazaros (National Observatory of Athens, NOA-IAASARS)

Session Classification: Communicating H2020 projects

Contribution ID: 8

Type: **not specified**

Art and game to communicate astrophysics

Authors: PEZZULLI, Edwige (National Institute of Astrophysics, INAF-IAPS); FACCINI, Marco (National Institute of Astrophysics, INAF-OAR)

Presenters: PEZZULLI, Edwige (National Institute of Astrophysics, INAF-IAPS); FACCINI, Marco (National Institute of Astrophysics, INAF-OAR)

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Type: **not specified**

The REINFORCE project

I will report on REINFORCE supported by the European Union's Horizon 2020 SWAFS program. It has developed demonstrator projects in the citizen-science platform, Zooniverse, engaging citizens in the analysis of:

- a) transient-noise signals mostly of environmental origin, in data from the Virgo gravitational-wave detector, concurrently participating in the improvement of the sensitivity of the detector;
- b) bioluminescence and bioacoustic data from KM3NeT, in the context of neutrino astronomy, helping to optimise detection strategies for cosmic neutrinos, while in parallel participating in a study of marine life in the deep sea environment;
- c) high-energy physics data from the ATLAS experiment at CERN, contributing to the search for new long-lived particles;
- d) and cosmic-ray data, exploring the connections across the fields of cosmic-ray physics, geology, volcanology and archaeology.

All demonstrator projects interact transversally with a sonification package in order to not only provide access to the data to visually-impaired people, but also to increase the perceptual capabilities of general scientific efforts, investigating the ability to distinguish signal from background using the different senses.

Presenter: KATSANEVAS, Stavros (European Gravitational Observatory, EGO)

Session Classification: Communicating H2020 projects

Contribution ID: 10

Type: **not specified**

COsMIC RAYS - A different strategy to explain high-energy astrophysics to youngsters (who usually have too high-energies to stop and hear who explains high-energy astrophysics)

Many years ago I started a bit for fun to write and draw comics focused on astrophysical themes which I then printed and left as flyers to the public during the astronomical outreach events in which I was involved. Later this activity became more and more important in my job and it was enriched with new experiences and awareness to the point of becoming the object of a research on the advantages offered by the use of comics as part of the dissemination of the ASTRI project. Today I'll try to tell you some of these results showing some of my works.

Presenter: ADAMO, Angelo (National Institute of Astrophysics, INAF-IASF Palermo)

Session Classification: Communicating H2020 projects

Contribution ID: 11

Type: **not specified**

Virtual and augmented environments for communicating Astronomy: Science, Education and Outreach experiences at INAF Palermo Observatory

The use of Augmented Reality (AR) and Virtual Reality (VR) in astronomy has been recognized as a very powerful tool, both for researchers, to better visualize and analyze astronomical data, and for educators to provide immersive, interactive and engaging learning spaces. By the use of a camera and an appropriate software, AR technology integrates and expands the surrounding reality with additional elements, thus making the real world and the virtual world coexist. The superimposition of elements such as videos, pictures, texts, sounds, games, virtual tours, 3D models, offers many effective and interactive solutions to explain science. VR is a technology based on the principle of interaction between a user and a computer, that can transmit in real time the illusion of being in another place and simulate the execution of actions like exploration, movement, touch. The visualization of astronomical data in 3D models, which are not a trick of computer graphic, but just science performed into the observatory, and the use of VR for public engagement allow the community to be at the cutting edge of science and technology. To show what powerful means AR and VR are for communicating astronomy and as examples for other astronomy outreach projects, we will show some experiences carried on in the last years at the INAF Palermo Observatory by the 3DMAP-VR team and in the framework of the PRIN INAF project "Virtual Reality and Augmented Reality for Science, Education and Outreach". This kind of tools can be effectively used to spread Ahead in the near future.

Presenter: LEONARDI, Laura (National Institute of Astrophysics, INAF)

Session Classification: Communicating H2020 projects

Contribution ID: 12

Type: **not specified**

Diversify and conquer: PO activities at IFCA for all ages and for all backgrounds

The PO activities at IFCA are very diverse and focused on a variety of potential learners.

Our starting point is the very local, classical-design programme “Expanding science” in which the scientists working at the institute regularly visit schools to talk about science, adapting the contents to the level of the scholars and adding a gender perspective to the activities. With these visits, the students can know in person real scientists working in a large number of research fields and what they contribute to the current problems of the society. These required a reformulation for the COVID era.

Another backbone of our PO activity is our participation in international initiatives to communicate science to the general public, all ages, again with a special look at the gender perspective. For this, we regularly participate in the ERN, the International Day of Women and Girls in Science, the Science Week, the Space Week, Black Hole Week and several joint initiatives of EU projects, benefiting from an in-person approach and also an on-line design.

Many diverse activities aiming at reaching a great variety of public, all ages, all backgrounds....you never know who is listening...

Presenter: CEBALLOS, Maite (Instituto de Física de Cantabria, CSIC-UC)

Session Classification: Communicating H2020 projects

Contribution ID: 13

Type: **not specified**

Expect the unexpected - Space and storytelling with LICIACube

Communicating small satellite's science to the general public is a challenge. When your goal is to give voice to an Italian CubeSat to be released from a breakthrough planetary defence mission by NASA... things can be even more challenging. In my talk I will show you the incredible results we obtained in about a year managing LICIACube's social media. LICIACube is the small satellite released by DART mission 15 days before the historic impact on asteroid Dimorphos, its job was to witness the impact from a very close distance. It obtained >600 pictures of the event and much more.

Presenter: NICHELLI, Elisa (National Institute of Astrophysics, INAF-OAR)

Session Classification: Communicating H2020 projects

Contribution ID: 14

Type: **not specified**

INAF and its One Thousand and One Stories

One of the most powerful collaborations in the whole Universe is the one between Art and Science. In the light of this, since 2020, a group of passionate and enthusiastic scientists and non-scientists of the Istituto Nazionale di Astrofisica (INAF) has gathered into a team that aims to unveil and share the beauty of astronomy through art: the “Gruppo Storie”. Our activities include space-adventure podcasts, video making, writing contests and columns for children, comics and also a creation of a portfolio of shows produced by INAF, and a project to engage the public in the discussion about the future of human race, between science and science fiction. Enthusiasm, brainstorming, professionalism and creativity are the drivers of this group, to make known all the evocative and beautiful aspects of astronomy through the extraordinary power of art.

Presenter: CARDILLO, Martina (National Institute of Astrophysics, INAF-IAPS)

Session Classification: Communicating H2020 projects

Contribution ID: 15

Type: **not specified**

“Look up! Flip the sky with your finger” a virtual exhibition for the enhancement of the historical astronomical atlases of INAF

Together with research activities in different fields of astrophysics and astronomical technologies, INAF promotes projects to preserve, valorize and public engagements projects related to its bibliographic, archival and instrumental heritage. The observatories are the oldest scientific institutions in Italy and contain more than 7000 rare books, over 1200 astronomical instruments, dated from the 11th century to the first half of the 1900s, and more than 3 million documents. The works of Galileo, Copernicus, Ptolemy, Kepler and Newton represent real milestones in global culture and are a symbol of the scientific revolution. In order to tell and enhance these works, the INAF “Cosmic Pages” and “Touch the sky” projects were developed. They led to the creation of the virtual exhibition “Look up! Flip the sky with your finger”. It is an effective communication tool aimed at enhancing and giving maximum dissemination of the entire collection of celestial atlases, cometographs and selenographies preserved in the INAF Observatories. These works, for their meticulous care, represent testimonies of rare beauty that blend art, mythology and science, as well as having a role of particular importance in the history of scientific culture. This virtual exhibit was designed and built so that the digital visitors can navigate, explore and understand how our knowledge of the cosmos, the Moon and the planets have evolved and changed. Using new virtual technologies, visitors will be able to explore the scientific and cultural content of the star and cartographic atlases, interacting with them and obtaining in-depth information on the cosmology of the time and the cultural environment in which they were produced. With the exhibition, educational activities were also developed, organized in collaboration with Save the Children Italy, to reach both students of all levels and the school-age population most in difficulty. The intent is to encourage and support the self-determination of the individual and self-expression, regardless of personal condition, gender, social status and culture of origin, using the cultural heritage of Italian astrophysics.

Presenter: DI GIACOMO, Federico (National Institute of Astrophysics, INAF)

Session Classification: Communicating H2020 projects

Contribution ID: 16

Type: **not specified**

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Thursday 3 November 2022 18:10 (20 minutes)

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Contribution ID: **18**Type: **not specified**

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Contribution ID: 25

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Type: **not specified**

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Contribution ID: 27

Type: **not specified**

Art and play to communicate astrophysics

Thursday 3 November 2022 15:50 (10 minutes)

Arts and games are becoming a favored medium for conveying science to the public. They can deeply engage people by focusing on the affective domain of learning (i.e., engagement, attitude, or emotion) as well as on the cognitive domain (i.e. understanding, comprehension, or application), which is often emphasized in science education.

Arts-based science communication stimulates creativity and enhances the discovery process by encouraging intuitive thinking, while games-based science communication catalyzes fun and competition to attract and intrigue very different audiences.

In this talk, we will present some art and game-based activities developed in AHEAD2020 public outreach framework.

Presenters: PEZZULLI, Edwige (National Institute of Astrophysics, INAF-IAPS); FACCINI, Marco (National Institute of Astrophysics, INAF-OAR)

Contribution ID: 28

Type: **not specified**

The REINFORCE project

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- a) transient-noise signals mostly of environmental origin, in data from the Virgo gravitational-wave detector, concurrently participating in the improvement of the sensitivity of the detector;
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Contribution ID: 29

Type: **not specified**

AHEAD2020: an overview

Thursday 3 November 2022 11:00 (30 minutes)

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Contribution ID: 30

Type: **not specified**

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Contribution ID: 31

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Presenter: PEARSON, James (The Open University)

Contribution ID: 32

Type: **not specified**

Crowdsourcing and public engagement in cultural heritage

Friday 4 November 2022 11:40 (20 minutes)

Crowdsourcing refers to a problem-solving and completing tasks model which involves the participation of people. There have several crowdsourcing projects in cultural heritage. This kind of project are important also to engage citizen and participation can have a thorough impact on the workflows of heritage institutions, for instance, by inviting users to assist in the selection, cataloguing, contextualization, and curation of collections.

In this kind of projects is very important the use of open data because the community that participates in their realization can reuse them freely.

In this presentation we will analyze some of the main crowdsourcing projects in GLAM sector and the methods and strategies used to.

Presenter: MARRAS, Anna Maria (Università di Torino)

Contribution ID: 33

Type: **not specified**

EUTOPIA

Friday 4 November 2022 12:00 (20 minutes)

LAPP is a major research laboratory in France. Research carried out at LAPP aims at studying the ultimate constituents of the matter, their fundamental interactions, as well as exploring their connections with the large structures of the Universe. Participations in major international projects, collaborations and open science initiatives have been in the laboratory's genes since its creation. One of the missions defined by Europe and the French governing bodies is to enhance training through and for research as well as to support links between research and a changing society. EUTOPIA is the name of the outreach, education and societal engagement programme at LAPP. In this paper, I will discuss how we have designed the homonymous scientific exhibition, our first achievement and the main pillar of such a programme, as well as our commitment by taking advantage of the laboratory's excellences and the specific socio-economic context of the local territory.

Presenter: LAMANNA, Giovanni (LAPP - CNRS)

Contribution ID: 34

Type: **not specified**

Embedding and Valuing University and Science Centre/Museums Partnerships

Friday 4 November 2022 12:20 (20 minutes)

Valuing a range of benefits that come from long term university / science centre relationships, this session explores these place-based relationships, sharing the learning and discussing the strategic approaches of this type of partnership. Science communication is a vital tool in enthusing and educating people with regards to science. It is a discipline that is carried out in a wide range of arenas. Specialists in each of these areas develop robust styles and approaches. Combining knowledge and skills from these areas, results in efficient partnerships that blur the divide, and maximise outreach opportunities and quality.

Presenter: BARKER, Josh (University of Leicester)

Contribution ID: 35

Type: **not specified**

Equity in the UK: supporting inclusive engagement using an understanding of science capital

Friday 4 November 2022 12:40 (20 minutes)

Diversity, equity, access, and inclusion (DEAI) is an ongoing challenge for science and informal science learning organisations are no exception. A number of programmes and initiatives in the UK, often led by ASDC (Association of Science and Discovery Centres), strive to support equitable and inclusive practice in the communication of the physical sciences, moving science centres, and the field, forward in their equity journey.

Shaaron Leverment joins us to share the role of the science capital research in making science more equitable within these programmes, how we have put theory into practice, and how this is helping science centres share content and support the participation in astronomy, astrophysics and space sciences for a far more diverse range of families and young people across the UK.

Presenter: LEVERMENT, Shaaron (Association for Science and Discovery Centres)

Contribution ID: 36

Type: **not specified**

Public communication of science in the post covid era: online, inclusive and aimed at an increasingly complex audience.

Friday 4 November 2022 17:00 (20 minutes)

The experience gained during the pandemic has on the one hand strengthened initiatives that were previously only collateral to in-presence communication programs, and on the other hand it has put us in front of the need to involve an increasingly wider and more varied public in a non-random way. The immediate need for online initiatives by schools allowed us to experiment, first, and then consolidate, target-oriented activities that, in addition to the involvement of researchers and the interaction with the public, envisaged narrative formats, properly modulated on the audience. This is how dialogues between researchers, the public and the school were born, aimed at telling about INFN research and physics, and based on scripted narratives: pre-edited stories accompanied by images and cartoons through the chroma-key technique, also reinforced by the use of detectors and demonstration tools, and closed by active Q&A sessions. The response from schools has been well above our expectations, clearly showing the need for quality contents on science, which pervades schools, mainly at the lower levels. The same strategy has been applied to the wider public and to more specialized audiences, thus including communication of a more institutional nature, on the occasion of announcements and media campaigns.

Presenters: COLLÀ RUVOLO, Cecilia (Istituto Nazionale di Fisica Nucleare, INFN); MAZZOTTA, Francesca (Istituto Nazionale di Fisica Nucleare, INFN)

Contribution ID: 37

Type: **not specified**

Astrophysics for Media and journalists: INAF's version

Friday 4 November 2022 17:40 (20 minutes)

An overview of the communication activities to the Media and Journalists carried out by the National Institute for Astrophysics, from 2004 till now. Facing the explosion of the internet era, the rise (and fall) of the Socials and the passing of a global pandemics.

Presenter: GALLIANI, Marco (National Institute of Astrophysics, INAF)

Contribution ID: 38

Type: **not specified**

Pandemic, infodemic. Que reste-t-il?

Friday 4 November 2022 17:20 (20 minutes)

The emergence of the Sars-Cov-2 virus on a global scale has amplified fragilities, catalyzed social, cultural and economic changes, generated rapid, massive and uncontrolled circulation of information, and challenged the role of science: infodemia, of which fake news is only one form. Tones of the narrative recall those of war; new or forgotten words have become commonplace; numbers of contagions, deaths, cures polarize attention; we are bewildered by conflicting, non-authoritative voices. What remains of the first pandemic in the time of social media; how do we rethink the relationship between those who do research and those who communicate it; will we know how to deal more consciously with future emergencies?

Presenter: FERRAZZOLI, Marco (CNR)

Contribution ID: 39

Type: **not specified**

Towards a Science Museum in Rome

Friday 4 November 2022 11:30 (10 minutes)

Since the last decades of the 19th century, Rome has been waiting for a Science Museum. Despite the place of honor in a virtual ranking of the capitals of the world, Rome has neither a Natural History Museum nor a Science and Technology Museum. This is paradoxical if we compare this condition with that of other cities, even in the Italian context (see e.g. Milan). Recently, after countless failed attempts in the past, a window has opened that allows us to be optimistic for the future. Thanks to the joint action of the Accademia dei Lincei and the Municipality of Rome, together with some other important city institutions (first of all the University “La Sapienza”), a cultural project was developed and approved. These days, what has been prepared in the context of this cultural planning is also becoming an architectural project. Thus a new structure will be born that will be an emerging point of connection and visibility for a variety of small and large museums, universities, laboratories and other scientific institutions of which the city is very rich.

Presenter: MANZI, Giorgio (Sapienza University)