

GRAFFA: A SCIENTIFIC COMMUNICATION PROJECT BY YOUNG RESEARCHERS FOR YOUNG PEOPLE

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Nell'ambito di



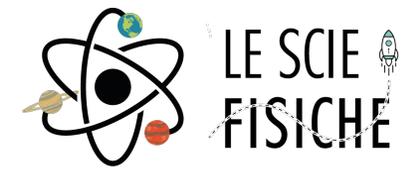
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REGIONE
LAZIO



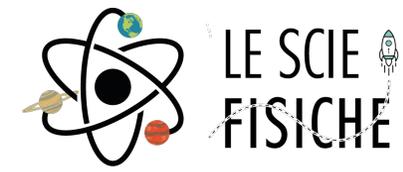
THE IDEA

- Graffa Instagram page was born in 2018 as a physics dissemination account managed by a group of PhD in Physics and Geology working at the National Laboratories of Frascati
- Our goal is to spread the idea that science – and physics in particular- is not just the study of distant galaxies, particle accelerators or complex mathematical formulas...
- Stereotypes such as scientific subjects are suitable for a minority of the population (and that this minority is more likely to be of male type) make a spontaneous approach to scientific disciplines quite difficult → fundamental to stand as an example for new generations
- Possibility to have fun while learning physics
- In 2021 Graffa won a grant from Regione Lazio and create a Youth Association : “Le Scie Fisiche”



OUR TEAM

- “Graffa - una giovane parentesi sulla Fisica” is a youth association founded by 3 post-docs (2 in particle physics and 1 in condensed matter) and one video maker
- Very interesting new entries:
 - 3 PhD (astrophysics, particle physics and science philosophy)
 - 1 technician and MSc in ITC
- Diverse group of young people working in science allows to “cover” different aspects of the research activities



*Brace- a curly bracket about physics (it's a wordplay because our president is called Raffa)

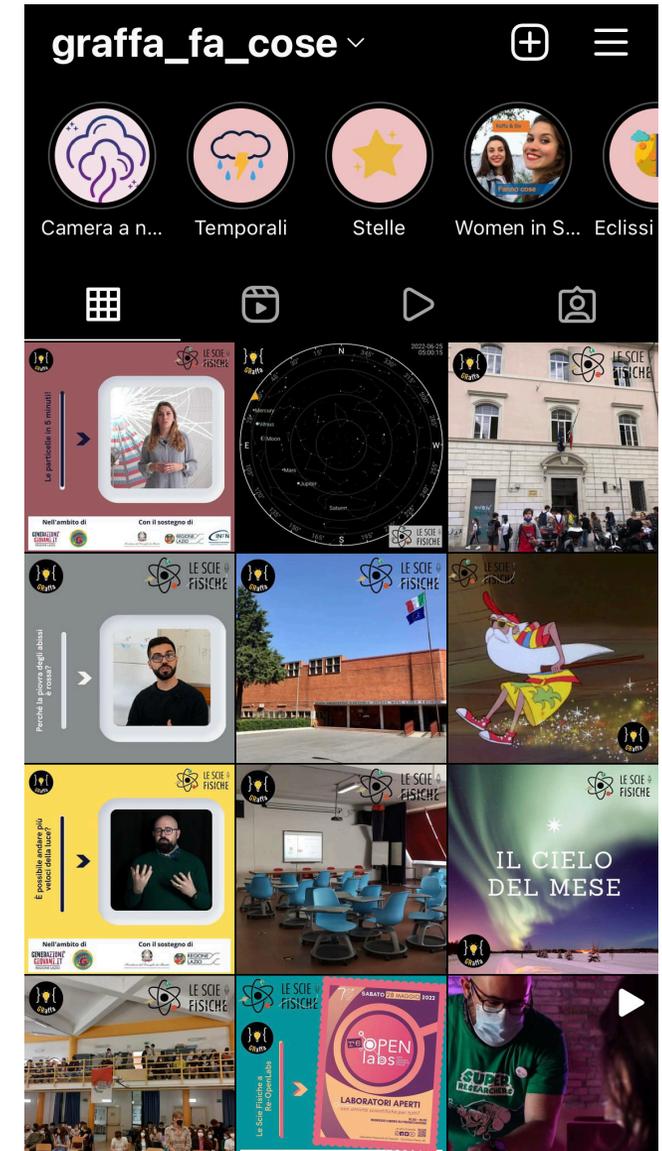
THE ACTION PLAN

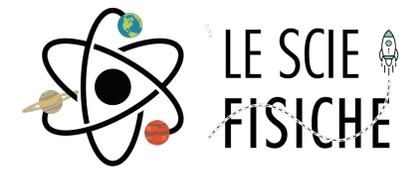
1. Instagram and Facebook contents: scientific post about everyday physics, “What’s in the sky this month” column, post on scientific milestones, advent calendar,...
2. Activities at schools: hands-on laboratories for elementary and middle school + seminars high school
3. Science video pills: 2-10 minutes video on different topics (from particle physics to why fishes are red)
4. Science Festivals: Organized in Lazio Region both in Rome and Frascati



SOCIAL MEDIA

- [Instagram](#) is our preferred social network
- Social media are now a very effective communication tool for communicate with young people informing and educating people on issues related to science.
- Fun, short and effective scientific explanations that are impactful for the audience
- IG stories when someone is attending a conference is in an international lab
- Everyday lab life
- Interaction with followers to know their curiosities and questions to produce new contents
- [Facebook](#) account to increase the catchment area





SOCIAL MEDIA

- We also open a [web site](#) to keep track of all our activities and give teachers and students the possibility to interact with us;
- We are planning to start a bi-weekly column on our site about the fundamental physics discoveries starting from XIX centuries to allow students to deepen their knowledge acquired in school;



HOME CHI SIAMO PROGETTO GRAFFA EVENTI CONTATTI VIDEO

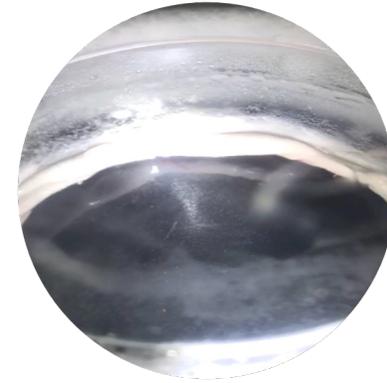
LE SCIE FISICHE

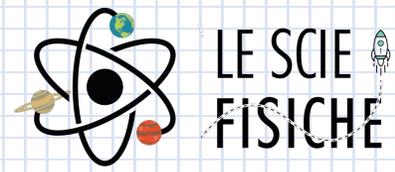
LA SCIENZA COME NON L'AVETE MAI VISTA



SCHOOL ACTIVITIES (I)

- It is essential to start science education at an early age, paying particular attention to the practical and experimental side;
- Workshops for primary and secondary schools: simple experiences, which allow young students to approach and learn the scientific method by stimulating their reasoning skills;
- ~ 300 kids (6-14 years) from more than 10 classes participated to our laboratories;





THE LABORATORIES

Light and
electromagnetic spectrum

How to build a cloud chamber

Supercool
Physics

Waves:
Sound and light

Kitchen physics

SCHOOL ACTIVITIES (2)

- **Seminar/easy-to-use lessons for students**, ranging from what an elementary particle is to how detectors “see” it, as well as other areas of physical inquiry and prospects of careers in science starting from **our own experience**, which are often considered too complicated or of little interest
- **More than 1100 students (14-19 years)** from more than **50 classes** participated to our activities



THE SEMINARS

Why maths it's
important in our life

An interesting
trip from muons to
radiation
protection

Particle
physics from
a door window

Medical physics
and sustainable
development

Physics application
to cultural
heritage

The big
discoveries
of early '900

Phylosophy of
science

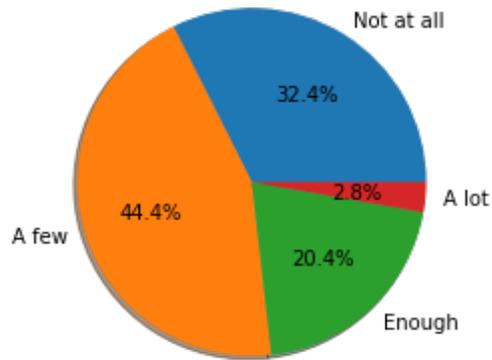


THE SURVEY (I)

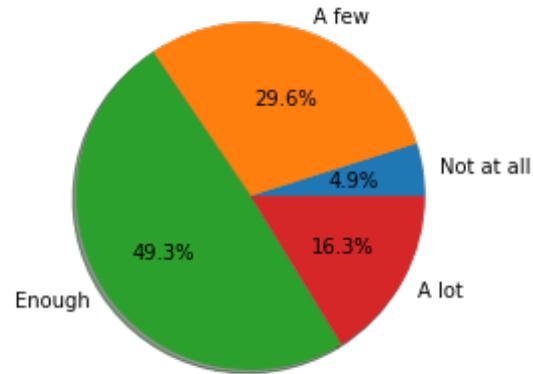
- At the end of each activities in the school asked the student to fill out a very brief survey
- It allowed us to understand the young generation point of view about physics and the potential existence of preconceptions/stereotypes about the researcher job.
- More than 1000 answers have been collected during this school year.
- 90% of the sample is composed by student and the remaining are the teachers
 - 4.9%: <14 years old
 - 78.2%: 14-18 years old
 - 8.5%: 19-24 years old
 - 8.4%: > 25 years old

THE SURVEY (II)

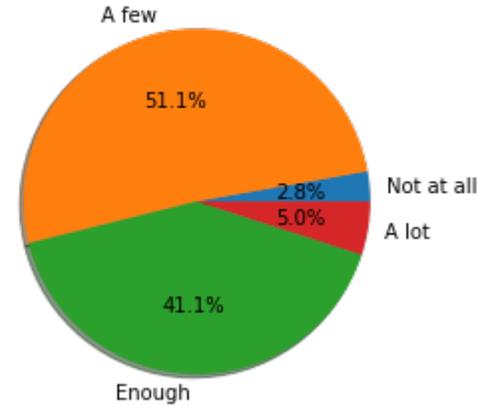
Do you feel you are involved in the research world?



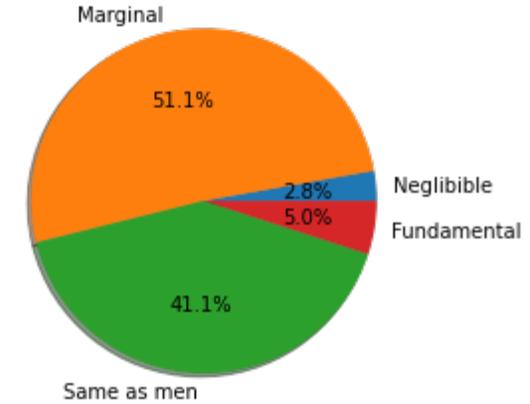
Are you interested in the physics activities



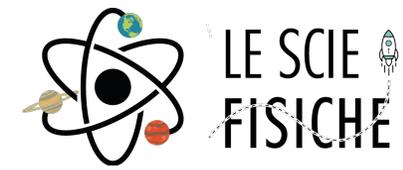
Do you think researchers are well integrated into society?



How do you see the role of women in science?



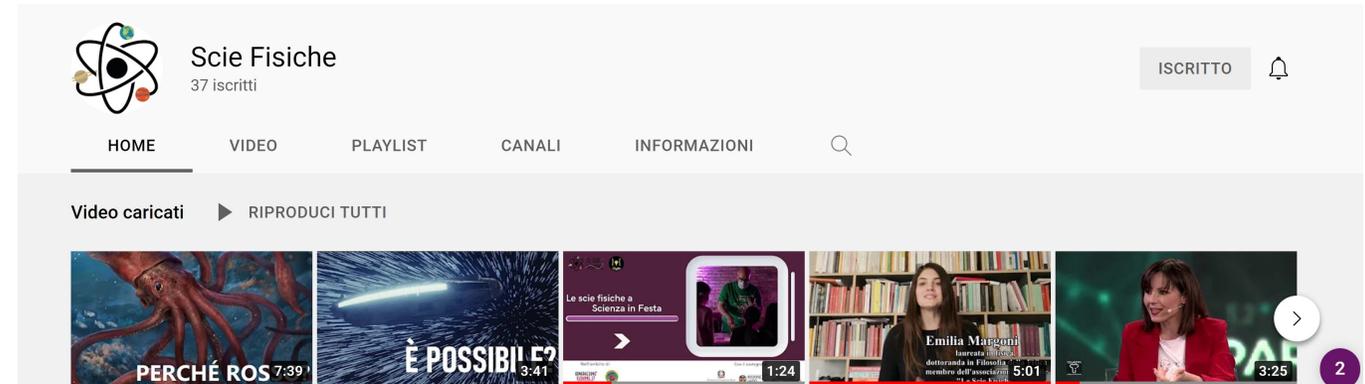
- From the survey and personal discussion with the students resulted clear that researchers are somehow seen as “outcasts/weirdos” and they found that have researchers in class with them was a good opportunity to understand what is the contribution that physics gives to the society
- Difficulties in strengthening science education due also to school’s budget
- Even if young girls find STEM a difficult path, they are interested in studying these subject at university



VIDEO PILLS

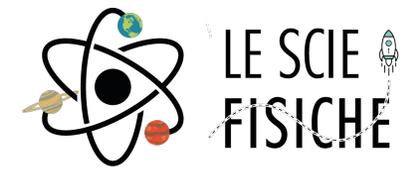


- During 2022 we decided to open a [YouTube](#) Channel both as support material for school teaching and to bring science closer to the general public;



- We also published a summary video for the science festivals we attend, so that those who were not present could still enjoy the experience;

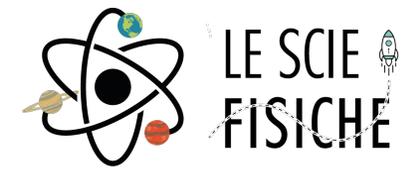




OUTREACH EVENTS

- From the beginning of the project(9/2021) we participated in several outreach events organized by our supporters (Frascati Scienza and National Laboratories of Frascati):
- Hands-on laboratories during the European Researchers' Night by FS (9/2021);
 - Sky explorers
 - 1,2,3 Scienza!
- Science Party by FS (10/2021)
- International Day of Women and Girls in Science (online event organized by LNF);
- Scienza in Festa (4/2022)
- Guided tours and educational workshops during the LNF OpenLabs (5/2022);





CONCLUSIONS

- After only one year of activities, we believe that the Associazione Giovanile Le Scie Fisiche has obtained quite remarkable results!
 - participation to important outreach event such as European Researchers Night and the International Day of Women and Girls in Science;
 - promoted scientific knowledge in a customized fashion, in schools as well as social platforms;
 - offered a positive example against gender stereotypes;
 - laid the foundations in the Lazio Region for future science outreach initiatives.

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