

## **PhD project in ASTROPHYSICS**

**Title of the Project:** *Study, design and implementation of innovative public engagement methodologies in radio astronomical projects.*

**INAF-IRA Supervisor :** Stefania Varano

**Co-Supervisors :** Jader Monari, Germano Bianchi, Silvia Casu (INAF – OAC)

**Scientific Case:** Public Engagement dealing with non-visible emissions of the electromagnetic spectrum necessarily implies showing the nature of astronomical data and the technologies used for making them accessible and understandable. Main characters of this story are the processes of science (the “how”) beyond the fascinating and appealing results one could decide to advertise and share (the “wow”). This involves the presentation of techniques and methods of science besides specific astronomical concepts and notions. In recent years, INAF-IRA has been deeply committed in the study and implementation of innovative methodologies of conscious, cooperative, creative and playful engagement with radio astronomy and modern astrophysics in general. Activities aimed at public and students include real radio astronomical observation and data reduction (also of interferometric data), virtual/augmented reality, citizen science, tinkering and game based learning activities for all ages, retracing the challenges of modern astronomical research. All activities are developed within the framework of Universal Design for Learning, in order to provide multiple ways for the users to access to scientific knowledge and look for their meaning and motivation, regardless social, cultural or physical diversities.

**Outline of the Project:** This project will focus on the study, design and implementation of effective and innovative ways of engaging the public with modern astrophysics and radio astronomy in particular, following these main research topics and activities:

1) the review of the status of the art of scientific research and results about innovative technologies of public engagement in scientific contexts (game based learning, virtual/augmented reality, citizen science, inquiry based learning, tinkering, etc.);

2) the collaboration to the outreach and dissemination activities of some of the major radio astronomical projects in which INAF is involved (working within SKA and SST projects in Medicina (BO), and with SRT during a dedicated period at INAF-OAC);

3) the design of brand new products and activities for public engagement in radio astronomical projects, aimed at:

- fostering a truthful awareness of these projects and of the grounding science and technology;

- promoting the use of the scientific method for the development of individual critical and life skills in students and young users;

- easing an equal access to modern astronomical knowledge.

**Contacts:** stefania.varano@inaf.it