**PARTNeR. Practical Radio Astronomy for Students**

**José F. Gómez, Olga Suárez, Carmen Blasco, Benjamin Montesinos, Jesús García, Concepción Prieto, Rafael Bellón**
Laboratorio de Astrofísica Espacial y Física Fundamental, INTA (Madrid, Spain)

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### General Goals

**PARTNeR** (Proyecto Académico con el Radio Telescopio de NASA en Robledo) will allow students to make real Radio Astronomy observations in a “hands-on” mode using the Goldstone Apple Valley Radio Telescope (GAVRT), which can be used in collaboration with the NASA Deep Space Communications Complex in Robledo de Chavela, near Madrid, Spain.

Our project is aimed at the three levels of users:

- High-schools
- High-schools
- General Goals

**PARTNeR** will be a novel learning tool to perform practical lessons prepared by their teachers. Our project differs from other astronomical education projects in that it is based on practical exercises about a single target of interest, those partly binarized radio sources for which there are catalogs including data Radio Astronomy.

### Science Program

Here are many different hands of radio sources that are very attractive for students. The most interesting are very probably those that are moving or changing position, and those that have an emission power at long wavelengths. Those are the ones that are moving fast enough to be found within the error boxes.

One of our main objectives is the monitoring of radio emission of X-ray bursts.

### Technical details

![Telescope Diagram](image)

**Sensitivity estimates**

<table>
<thead>
<tr>
<th>Source Type</th>
<th>Sensitivity Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ray burst sources</td>
<td>3 months</td>
</tr>
<tr>
<td>Gamma-ray bursts</td>
<td>3 months</td>
</tr>
<tr>
<td>QSOs</td>
<td>3 months</td>
</tr>
<tr>
<td>Pulsars</td>
<td>3 months</td>
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### User Interface

**The main user interface will be specially designed and developed by the users, and it will be located in the control center of the project.**

### Learning program

We expect that most of the teachers (and amateur astronomers) will not have a deep knowledge of Radio Astronomy. Therefore, a comprehensive learning program will be necessary before they can use PARTNeR.

We will offer in the next few years more courses aimed to the users of the project.

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### Curriculum material

**Radiation Sources**

- A course on how to perform the observations, including the use of PARTNeR.
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**Teaching Material**

- A course on how to perform the observations, including the use of PARTNeR.
- A course on how to perform the observations, including the use of PARTNeR.

**PARTNeR as an Educational Tool**

- A course on how to perform the observations, including the use of PARTNeR.
- A course on how to perform the observations, including the use of PARTNeR.
- A course on how to perform the observations, including the use of PARTNeR.

**Physical and Technical Specifications**

- A course on how to perform the observations, including the use of PARTNeR.
- A course on how to perform the observations, including the use of PARTNeR.