

# WP5 JRA AETHRA

AETHRA (Advanced European Technologies for Heterodyne Receivers for Astronomy) aims at exploiting new technologies, such as highly integrated microelectronic semi- or superconducting circuits, to significantly improve the next generation receivers of mm and sub-mm wavelength telescopes, reinforcing European technological and scientific leadership by considerably improving the receiver performance and observing speed of the European-owned world- leading facilities ALMA, APEX, NOEMA and PV. The most effective means to boost the observing speed of those instruments at a reasonable cost consist of: a) widening the Intermediate/Radio frequency (IR/FR) receiver bandwidths and b) implementing large focal plane arrays (FPAs) of heterodyne receivers. ([WP5 Description](#)).

**The AETHRA partner:** MPG, IRAM, INAF, OSO, STFC, SRON, OBSPARIS, UOXF, UAH, ESO, Fraunhofer, RUG, UCO, TUD

## The AETHRA tasks:

- WP5.1: Semiconductor LNAs and MMIC receivers [MPG, IRAM, INAF, Fraunhofer]
- WP5.2: Very large Focal Plan Array of SIS mixer receivers [IRAM, OSO, UOXF, UAH]
- WP5.3: FPA of receivers operating around 1 THz [UOXF, SRON, OBSPARIS, RUG, UAH, UCO, TUD]
- WP5.4: Subtasks common to Tasks 5.1-5.3 [IRAM, OSO, STFC, OBSPARIS, UOXF, UAH, RUG, UCO, TUD]

This activity is lead by IRAM - Leader F. Gueth.

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## AETHRA Meetings / Teleconferences

- 11-12 April 2017, Grenoble/FR - [AETHRA Kick off](#)
- 7 June 2018, Grenoble/FR + videoconference [AETHRA Progress Meeting](#)

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## Deliverables

The following deliverables are scheduled for WP5:

| No   | Del. Title  | Lead beneficiairy | Type   | Dissemination level | Due date   | Submission date | Document |
|------|---|-------------------|--------|---------------------|------------|-----------------|----------|
| D5.7 | Multipixel demonstrator of FPA of HEB mixer receivers | OBSPARIS          | Demons | Public              | 31.12.2019 |                 |          |

| No   | Del. Title   | Lead beneficairy | Type   | Dissemination level | Due date   | Submission date | Document |
|------|--|------------------|--------|---------------------|------------|-----------------|----------|
| D5.6 | Multipixel FPA demonstrator composed of 2SB SIS mixer receivers operating around 1THz  | RUG              | Demons | Public              | 31.12.2019 |                 |          |
| D5.5 | Multipixel FPA demonstrator composed of miniaturized 2SB receivers operating near 1 mm   | IRAM             | Demons | Public              | 31.12.2019 |                 |          |
| D5.4 | Very wideband RF/IF SIS receiver Designs and test report on prototype wideband mixer built on 2SB technology and operation around 1-mm | OSO              | RE     | Public              | 31.12.2019 |                 |          |
| D5.3 | Multipixel W-band FPA demonstrator composed of cryogenic module and down conversion module   | IRAM             | Demons | Public              | 31.12.2019 |                 |          |
| D5.2 | Low noise, cryogenic 35 nm mHEMT MMIC amplifiers   | Fraunhofer       | Demons | Confidential        | 31.12.2019 |                 |          |
| D5.1 | SIS junction mixer operating around 1 THz  | UOXF             | RE     | Public              | 30.6.2019  |                 |          |

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