

# VLBI opportunities and perspectives in Italy and on a global level

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# Italian VLBI

## What we have

- 3 stations (Mc, Nt, Sr)
- software correlator (Bo)
- (optical fibre connection)
- some expertise
- angular resolution 5-50 mas
- sensitivity ~sub-milliJansky

## Improves/complements single dish

- filters out extended emission
- improves sensitivity (more collecting area, more time on source)
- filters out RFI

**good for compact, non thermal sources**

- **RL AGN**
- **RG AGN**
- **galactic transients (XRB, ...)**
- **extragal. transients (GRB, ...)**
- **“exotic” transients (FRB, GW?)**

**synergy with other MA (maser)**

## Things to improve

- community awareness, manpower
- frequency coverage
- coordination (eg scheduling)

# Event Horizon Telescope

- combination of 9 telescopes operating at 230 GHz
- **including phased ALMA**



- angular resolution of about 20  $\mu$ as
- able to resolve black hole shadow around SgrA\* ( $4 \times 10^6 M_{\text{sun}}$ ) and M87 ( $3-6 \times 10^9 M_{\text{sun}}$ )
- general relativity, jet launch

## Collaborators

- [ALMA](#)
- [APEX](#)
- [ASIAA](#)
- [Arizona Radio Observatory \(U. of Arizona\)](#)
- [Caltech Submillimeter Observatory](#)
- [CARMA](#)
- [ESO](#)
- [Georgia State University](#)
- [Goethe-Universität Frankfurt am Main](#)
- [GLT](#)
- [Harvard Smithsonian Center for Astrophysics](#)
- [Submillimeter Array](#)
- [University of Massachusetts - Amherst](#)
- [Instituto Nacional de Astrofísica, Óptica y Electrónica \(INAOE\)](#)
- [IRAM](#)
- [JCMT \(East Asian Observatory \(operators\)\)](#)
- [LMT](#)
- [MIT Computer Science and Artificial Intelligence Lab \(CSAIL\)](#)
- [MIT Haystack Observatory](#)
- [Max-Planck-Institut für extraterrestrische Physik](#)
- [MPIFR](#)
- [NAOJ](#)
- [NRAO](#)
- [NSF - The EHT project gratefully acknowledges support from the](#)
- [Onsala Space Observatory](#)
- [Perimeter Institute](#)
- [Radboud University](#)
- [Shanghai Astronomical Observatory \(SHAO\)](#)
- [Universidad de Concepción](#)
- [Universidad Nacional Autónoma de México \(UNAM\)](#)
- [University of California - Berkeley \(RAL\)](#)
- [University of Chicago \(South Pole Telescope\)](#)
- [University of Illinois Urbana-Champaign](#)
- [University of Michigan](#)

