

# Curriculum Vitae and Studiorum of Marica Branchesi

## Personal Data

**Name:** Marica Branchesi **Place and Date of Birth:** Urbino - Italy, 7 March 1977

**Nationality:** Italian **Residence:** via Mari 24, 61029 Urbino

## Current Position

Researcher at the Dipartimento di Scienze di Base e Fondamenti (DiSBeF) - Università degli Studi di Urbino "Carlo Bo". **Address:** Via S. Chiara, 27 - 61029 Urbino (PU), Italy

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## Funding and grant

### 2013-2016

- **Principal Investigator of the FIRB research project:** "New perspectives on the violent Universe: unveiling the physics of compact objects with joint observations of gravitational waves and electromagnetic radiation". **Grant for excellent young researchers funded with 958.49k EUR by MIUR** (Italian Ministry of Education, University and Research).

### 2012

- **VESF (Virgo Ego Scientific Forum) fellowship grant** on the "Electromagnetic follow-up in the Advanced Virgo era"

## Previous Positions

**2012** Invited Long-Term Visitor at the Department of Physics at The California Institute of Technology (Pasadena, August-December 2012)

**2009-2012** Postdoctoral Research Fellow at the Università degli Studi di Urbino "Carlo Bo".

**2006-2009** Postdoctoral Research Fellow at the Istituto di Radioastronomia (Bologna)-Istituto Nazionale di Astrofisica (INAF)

**2006** Ph.D. degree in Astronomy at the ALMA Mater Studiorum Università di Bologna. Thesis title: "X-ray and Radio Evolution of Clusters and Cluster Galaxies".

Supervisors: Senior Research Associate I.M. Gioia, Full Professor R. Fanti and Associate Professor C. Fanti.

**2003-2006:** Ph.D. student at the ALMA Mater Studiorum Università di Bologna. Research developed at the Istituto di Radioastronomia (INAF-Bologna).

**2002:** Master Degree in Astronomy at the ALMA Mater Studiorum Università di Bologna. Thesis Title: "Polarization Study of Subgalactic Radio-Sources" Mark: 110/110 cum laude.

Supervisors: Full Professor R. Fanti and Associate Professor C. Fanti.

**1995:** High School Degree at Scientific Lyceum L. Laurana (Urbino). Mark: 60/60.

## Memberships and collaborations:

2009-now: Scientific association to INFN (Istituto Nazionale di Fisica Nucleare)

2013-now: Scientific association to INAF (Istituto Nazionale di Astrofisica)

2009-now: Member of EGO (the European Gravitational Observatory)

2009-now: Participation in the LSC (LIGO Scientific Collaboration) and Virgo collaborations

2009: Member of the International Astronomical Union (IAU)

## Membership in LSC and Virgo committees with the mandate:

1. to define conditions on data sharing, required reports on results, publications of results, authorship and criteria to sign MOUs between LIGO/Virgo and partner astronomers for the advanced era EM follow up (2013-now)
2. to define "the observing plan for the advanced detector era EM follow-up" (2012-2013)

3. to identify "the features of a minimal set of EM observing resources to carry out follow-ups of GW triggers in the advanced detector era" (2012-2013)

### **Project Co-chief**

Image analysis for Zadko, TAROT and QUEST telescope in the LIGO/Virgo "GW-EM follow-up" program.

**Reviewer:** internal LIGO/Virgo reviewer for the Swift Follow-up project

**Referee** for Astronomy & Astrophysics and "Journal of Physics: Conference Series"

**Invited Visiting scientist** in 5 International Institutes (Caltech, The University of Texas at Brownsville, the California State University, AstroParticule & Cosmologie-CNRS, University of Birmingham) and 5 invited seminars in the last four years.

**Attendance to International Conferences, Presented Talks and Posters:** participation in 18 international conferences, 10 presented talks, of which 6 invited talks, 4 presented posters.

**Publication:** 35 publications in peer reviewed journals, among which 30 articles and 5 conference proceedings.

### **Teaching Experiences**

**2013:** Lecturer at the International "School on Gravitational Waves, neutrinos and multiwavelength e.m. observations: the new frontier of Astronomy" (April 15-18, 2013, Rome).

**2011:** Lecturer at the International School "The 2nd Vesf School on Gravitational Waves Data Analysis from may 2nd to may 6th 2011 at the EGO site" (May 2-6, 2011, Pisa)

**2010-2013** - Assistant Lecturer of the course Physics at the Facoltà di Scienze Motorie, Università degli Studi di Urbino "Carlo Bo".

### **Research Activity**

Dr. Branchesi is an astronomer with a deep expertise in electromagnetic (EM) data analysis over radio, optical and X-ray spectral bands, who started with studies of clusters of galaxies and Active Galactic Nuclei (AGN). In the last four years her interest extended to the field of gravitational-wave (GW) detection. In the coming years the upgrading of GW detectors, Virgo and LIGO, will reach sensitivities to observe for the first time GW signals, opening a new exciting frontier for the observational astrophysics. Dr. Branchesi is carrying out studies of the most promising GW sources detectable by LIGO and Virgo, which are also expected to emit photons: the merger of neutron stars (NSs) and/or black holes (BHs) and the core collapse of massive stars. She was active in the first 2009/2010 EM follow-up of GW candidate events. She is the LIGO-Virgo project co-chief for the TAROT, QUEST, and Zadko telescope image analysis. She developed efficient LIGO/Virgo pipelines to discriminate the EM counterpart from background transients in large field of view of optical images in the first EM follow up. Her research interest focuses on the physics of the possible EM counterpart by participating in observational work on Gamma Ray Bursts and Supernovae. She has been called by the LSC and Virgo collaborations to serve in the committees that define the observing plan and policy for the advanced era (ADE) EM follow-up, which is expected to start in 2015. She is developing projects to involve and optimize observational resources and GW/EM analysis techniques to participate in the ADE EM-follow up by working with researchers in INAF (Istituto Nazionale di Astrofisica), INFN (Istituto Nazionale di Fisica Nucleare) and prestigious international institutes. As PI of a the FIRB project, she coordinates the efforts of young GW physicists and astronomers of 3 institutes: the University of Urbino, with expertise in GWs and EM follow-up observations, the University of Pisa, with knowledge on instrumentation and data analysis in high-energy EM, and the INAF/Padova observatory with expertise in numerical simulations of NS/BH binary dynamics.