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Name: Mario Gai
E-mail: gai@oato.inaf.it
Born: September 30th, 1965 - Ceva (CN) - Italy
Position: Research Astronomer at INAF-OATo since 1991
Education: 1984 - 1989 Laurea in Physics *summa cum laude*
Università degli Studi di Torino (Italy)

Main Activity:

1991 - 1992: Test and read-out electronics design on TIRCAM
(8-14 μm IR camera)
1992 - 1995: Electronics design of TC-MIRC (Two-Channels Medium
IR Camera, 1-5 μm and 8-14 μm)
1995 - 1996: Preliminary studies on the interferometric payload and
detection system of the astrometric satellite GAIA
1996 - 2001: ASI studies on the payload and detection system
of GAIA: baseline and backup (interferometric) configuration
1997 - 1998: OATo study manager for ESTEC contract "Active
Pointing of Large Telescopes" + "Attitude Measure
Transfer System"; prime contractor Alenia Spazio
1998 - 2000: CNAA studies on the interferometric configuration and
detection system of the Large Binocular Telescope
1999 - 2003: Principal Investigator of the FINITO ("Fringe-tracking
Instrument of Nice and Torino") instrument for VLTI
2001 - ...: Coordinator of the ESA Working group "On-Ground and In-Orbit
Calibration" for mission GAIA
2001 - 2005: Researchers representative in the Observatory Council
2002 - 2005: OATo responsible for manufacturing of the PRIMA Fringe Sensor Unit
for VLTI, prime contractor Alenia Spazio
2002 - 2003: OATo responsible for the ESTEC contract on System-Level Technical
Assistance and Design Study for GAIA, prime contractor Alenia Spazio
2002 - ...: member of the International Astronomical Union – commission 9

- 2002 – 2006: Professor of the course “Laboratorio di Astrofisica” for the Laurea Specialistica of Astronomia and Astrofisica at the Università degli Studi di Torino (a.a. 2002/03; 2003/04; 2004/05; 2005/06)
- 2004 – 2005: Italian deputy at the ESO VLTI Implementation Committee
- 2004 – 2006: Responsible for the Work Package 1.2: “Advanced instruments: Cophasing and Fringe Tracking” of the Joint Research Activity n. 4: “Integrating optical interferometry into mainstream astronomy” of the OPTICON - Optical Infrared Co-ordination Network for Astronomy, an Integrated Infrastructure Initiative of the 6th Framework Program of the EU.
- 2005: Member of the ESO Tiger Team for investigation on the fringe tracking loop problems at VLTI.
- 2005 – 2006: Coordinator of the PRIN INAF project “Infrared interferometry: optimisation of astrophysical observations”
- 2006 – 2007: Leader of the Development Unit n. 4 (“Spacecraft and Instrument Model”) of the Coordination Unit n. 2 (“Simulations”) in the Gaia Data Processing and Analysis Consortium.
- 2007: Coordinator of Italian participation to the Design Study proposal on the Kilometric Optical Interferometer (KOI) submitted to the call FP7-INFRASTRUCTURES-2007-1 (PI: A. Quirrenbach)

Supervised PhD Thesis:

- 1) Busonero Deborah - Univ. Siena (Italy) 2005
The Gaia astrometric measurement model: error budget and calibration issues
- 2) Bonino Donata - Univ. Torino (Italy) 2008
Analysis of measurement algorithms and modelling of interferometric signals for infrared astronomy

Publications in chronological order:

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"TC-MIRC: a Two Channel Medium IR Camera"

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"A transputer network for real-time acquisition of IR astronomical data"

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"Combined Visual and Near-IR Digital Photometry: The Very Young Cluster Westerlund 2"

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"Non-Conventional Detector Applications for Direct Focal Plane Coverage"

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"DS³: Drift Scan Survey Spectrograph"

Gai, M., Lattanzi, M.G., Guarnieri, M.D., Robberto, M., Munari, U. Proceedings of the International Conference on "Wide-Field Spectroscopy", Athens, 20-24 May, 1996, Eds. Kontizas, E., Kontizas, M., Morgan, D.H., Vettolani, G.P., Kluwer Acad. Publ., p. 121.

"A Drift Scan Camera for Astrometry"

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R. Cancelliere, *M. Gai*

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“Function Approximation of Seidel Aberrations by a Neural Network”

R. Cancelliere, *M. Gai*

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D. Bonino, M. Gai, L. Corcione, G. Massone

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ESO Report prepared by the VLTI Implementation Committee
Contributors: F. Delplancke, M. Gai, R.Genzel, A. Glindemann, F. Eisenhauer, T. Ott, T. Paumard, G. Perrin
(coordinator), J.U. Pott, J. Surdej, O. Von der Luehe
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Team Members: M. Gai, P. Kervella, D. Mozurkewich, M. Swain, G. Vasisht

Chromaticity in all-reflective telescopes for astrometry:

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VSI: the VLTI spectro-imager

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