

Roger Ianjamasimanana | Curriculum Vitae

✉ ianja@iaa.es • IAA-CSIC • 📞 665 470 990

🐙 [GitHub](#) • [LinkedIn](#) • 🏠 [Homepage](#)

WORK EXPERIENCE

POSTDOCTORAL POSITIONS

INSTITUTO DE ASTROFÍSICA DE ANDALUCÍA 10/2021 - Present

Contract type: full-time research • **Duty:** Square Kilometre Array (SKA) precursors science for AMIGA (Analysis of the interstellar Medium of Isolated GALaxies) • **Group leader:** Dr. Lourdes Verdes-Montenegro • **Country:** Spain

RHODES UNIVERSITY 09/2017 - 09/2021

Contract type: full-time research • **Duty:** HI science with MeerKAT • **Group leader:** Prof. Oleg Smirnov • **Country:** South Africa

UNIVERSITY OF SOUTH AFRICA 07/2014 - 06/2015

Contract type: full-time research • **Duty:** Research on HI in nearby galaxies • **Group leader:** Prof. Lerothodi Leeuv • **Country:** South Africa

FELLOWSHIP

MAX PLANCK INSTITUTE FOR ASTRONOMY 12/2015 - 11/2017

Name: Georg Forster Research Fellow, Alexander von Humboldt Foundation • **Duty:** Research on HI in nearby galaxies using data from the VLA • **Group leader:** Dr. Fabian Walter • **Country:** Germany

RESEARCH VISIT

SOUTH AFRICAN RADIO ASTRONOMY OBSERVATORY (SARAO) 12/02/2024 - 16/02/2024

• **Duty:** Exploring radio astronomy calibration algorithms, intended for application as a practical use case for the Spanish SKA Regional Center • **Host:** Prof. Oleg Smirnov • **Country:** South Africa

MAX PLANCK INSTITUTE FOR ASTRONOMY 09/2019 - 11/2019 **Sponsorship:** Return fellowship of the Alexander von Humboldt Foundation • **Duty:** Spectral line stacking of resolved galaxies using Python • **Group leader:** Dr. Fabian Walter • **Country:** Germany

SUPERVISION

M.Sc. 2023-Present

• **Key role:** Co-supervisor • **Thesis title:** Parameterisation of galaxies: a demonstration of open science • **Student name:** Nirinjanahary Mamy • **Institution:** University of Antananarivo, Madagascar

M.Sc. 2023-Present

• **Key role:** Supervisor • **Thesis title:** Star formation and the phases of the HI in nearby galaxies • **Student name:** Rabarisoa Randia • **Institution:** University of Antananarivo, Madagascar

M.Sc.

2022-Present

- **Key role:** Supervisor
- **Thesis title:** Comparing 3D and 2D kinematics of nearby galaxies
- **Student name:** Maminiaina Rakotovao
- **Institution:** University of Antananarivo, Madagascar

THESIS EXAMINATION

M.Sc.

2021

- **Key role:** External examiner
- **Institution:** University of Pretoria, South Africa

B.Sc.

2019

- **Key role:** External examiner
- **Institution:** University of Pretoria, South Africa

EDUCATION

UNIVERSITY OF CAPE TOWN

Ph.D. IN ASTRONOMY

06/2014

- **Thesis title:** Interstellar medium properties and star formation in nearby galaxies
- **Class pass:** First class
- **Supervisor:** Prof. Dr. W.J.G de Blok
- **Country:** South Africa

M.Sc. IN ASTROPHYSICS AND SPACE SCIENCE

06/2011

- **Course work:** Cosmology and Astrophysics
- **Dissertation:** The shapes of the H I velocity profiles of The H I Nearby Galaxy Survey (THINGS) galaxies
- **Class pass:** Not applicable
- **Supervisor:** Prof. Dr. W.J.G de Blok
- **Country:** South Africa

B.Sc. IN SPACE SCIENCE

12/2008

- **Course work:** Space Science, Physics and Astrophysics
- **Dissertation:** Asymptotic Giant Branch Variables (AGB) in the Fornax dwarf spheroidal galaxy
- **Class pass:** Second pass
- **Supervisor:** Prof. Dr. Patricia Whitelock
- **Country:** South Africa

UNIVERSITY OF ANTANANARIVO

B.Sc. IN PHYSICS AND CHEMISTRY

12/2007

- **Course work:** Physics, Chemistry, and Mathematics
- **Class pass:** Not applicable
- **Country:** Madagascar

AWARDS AND FUNDING

AWARDS

CERTIFICATE OF HONOUR

2023

I obtained a certificate of honour as part of the Five-hundred-meter Aperture Spherical radio Telescope (FAST) proposal review panel in 2023 to evaluate proposals based on their scientific merits and feasibility.

GERMAN-AFRICAN COOPERATION

2022

Qualified in a competitive selection for participation with a talk in the virtual Humboldt Colloquium "Science and Research as Drivers for Development - German-African Cooperation in the Post-COVID-19 Era"

Name: Humboldt Alumni Award for Innovative Networking Initiatives for a creative networking initiative to promote STEM subjects and Astronomy in Madagascar and South Africa • **Amount:** Euro 25000

LINDAU NOBEL LAUREATES MEETING

25/06/2016 - 01/07/2016

Qualified in a global competition among young scientists worldwide to participate in the 66th Lindau Nobel Laureate Meeting dedicated to Physics • **Place:** Lindau, Germany

GRANT & FUNDING

VISION2024

25/06/2016 - 01/07/2016

Together with professional astronomers from Madagascar, we have secured funding from the International Astronomical Union (IAU) to organize workshops in 2023 to prepare students from Madagascar for the 2024 IAU general Assembly to be held in Cape Town in 2024 • **Link:** [vision-2024](#) • **Amount:** ZAR 20000 • **Country:** South Africa

PPI GRANT

2014

Successful application to the Postgraduate Publication Incentive (PPI) grant of the University of Cape Town • **Amount:** ZAR 5000 • **Country:** South Africa

SKILLS

DATA REDUCTION **Advanced:** Use of the CARACal pipeline to reduce the MeerKAT HI data of WLM, NGC 4945, and six Hickson Compact Group galaxies.

SOFTWARE **Advanced:** TIRIFIC | FAT | GIPSY | MIRIAD **Familiar:** 3DBAROLO | CASA

VISUALIZATION TOOLS **Advanced:** Kvis | DS9 | CARTA | AstroTigger **Familiar:** SlicerAstro

PROGRAMMING LANGUAGES **Advanced:** Python **Previous experience:** MatLab | Mathematica | IDL | Fortran | C

WEB DEVELOPMENT **Advanced:** Django | nginx | gunicorn

DATABASE MANAGEMENT **Advanced:** PostgreSQL

LANGUAGES **Fluent:** English (Advanced 1 and Advanced 2) | French **Intermediate:** German (B1.1)

RESEARCH INTERESTS

TOPICS

Galaxy evolution • The neutral atomic hydrogen content of galaxies • Gas accretion in galaxies • The cosmic web • The influence of environment on the gas properties and the star formation rate of galaxies • The energy, the dynamics and the kinematics of the interstellar medium

PEER-REVIEWED PUBLICATION

2023

• Das, Mousumi; **Ianjamasimanana, Roger**; McGaugh, Stacy S.; Schombert, James; Dwarakanath, K. S. (5/2) 2023, Estimating the Oblateness of Dark Matter Halos Using Neutral Hydrogen Velocity Dispersion, ApJ, Vol. 946, Issue 1, id.L8, 8 pp.

2023

- Namumba, B.; Román, J.; Falcón-Barroso, J.; Knapen, J. H.; **Ianjamasimanana, R.**; (32/5) 2023, MIGHTEE-H I: possible interactions with the galaxy NGC 895, MNRAS, Vol. 521, Issue 4, p. 5177

2022

- Atemkeng, M., Okouma, P., Maina, E., **Ianjamasimanana, R.**, Zambou, S. (5/4) 2022 Radio Astronomical Antennas in the Central African Region to Improve the Sampling Function of the VLBI Network in the SKA Era? Sensors, Vol. 22, Issue 21, p. 8466
- **Ianjamasimanana, R.**, Koribalski, B. S., Józsa, G. I. G. and Atemkeng, M. (23/1), 2022, The extended HI halo of NGC 4945 as seen by MeerKAT, Monthly Notices of the Royal Astronomical Society, 513, 2019–2038
- Yang, Y., **Ianjamasimanana, R.**, Hammer, F., Higgs, C., Namumba, B., Carignan, C., Józsa, G. I. G., and McConnachie, A. W., (8/2), 2022, Evidence of RAM pressure stripping of WLM, a dwarf galaxy far away from any normal host galaxy, Astronomy and Astrophysics, 660, L11 (7 pp.)
- Knowles, K., Cotton, W. D., Rudnick, L. and Xiaia, B. (151/15), 2022, The MeerKAT Galaxy Cluster Legacy Survey. I. Survey Overview and Highlights, Astronomy and Astrophysics, 657, id.A56, 41 pp
- Namumba, B., Koribalski, B. S, Józsa, G. I. G., (27/8), 2022, MeerKAT-64 discovers wide-spread tidal debris in the nearby NGC 7232 galaxy group, Monthly Notices of the Royal Astronomical Society, 505, Issue 3, pp.3795-3809

2021

- **Ianjamasimanana R.**, Namumba B., Ramaila Athanaseus J. T., and White S. V. (22/1), 2021, MeerKAT-16 HI observation of the dIrr galaxy WLM, Monthly Notices of the Royal Astronomical Society, 505, I. 3, pp.3795-3809

2020

- Das M., McGaugh S. S., **Ianjamasimanana R.**, Schombert J., and Dwarakanath K. S., (5/3), 2020, Tracing the Dynamical Mass in Galaxy Disks Using HI Velocity Dispersion and Its Implications for the Dark Matter Distribution in Galaxies, The Astrophysical Journal, 889, Issue 1, id.10, 11 pp

2018

- **Ianjamasimanana R.**, Walter F.; de Blok W. J. G.; Heald George H.; and Brinks E., (5/1), 2018, Smooth HI Low Column Density Outskirts in Nearby Galaxies, The Astronomical Journal of the American Astronomical Society, 155, Issue 6, article id. 233, 22 pp

2017

- **Ianjamasimanana R.**; de Blok W. J. G.; Heald George H. (3/1) 2017, Accurate Recovery of HI Velocity Dispersion from Radio Interferometers, The Astronomical Journal of the American Astronomical Society, Issue 5, article id. 213, 13 pp

2016

- Mogotsi K. M., de Blok W. J. G., Caldú-Primo A., Walter F., **Ianjamasimanana R.**, and Leroy A. K., (6/5), 2016, HI and CO Velocity Dispersions in Nearby Galaxies, The Astronomical Journal of the American Astronomical Society, 151, Issue 1, article id. 15, 11 pp

2015

- **Ianjamasimanana R.**, de Blok W. J. G., Walter F., Heald G. H., Caldú-Primo, A., and Jarrett Thomas H., (6/1),

2015, The Radial Variation of HI Velocity Dispersions in Dwarfs and Spirals, The Astronomical Journal of the American Astronomical Society, 150, Issue 2, article id. 47, 12 pp

2013

• Caldú-Primo A., Schrubba, A., Wealter F., Leroy A., Sandstrom K., de Blok W. J. G., **Ianjamasimanana R.** and Mogotsi K. M. (8/7), 2013, A High-dispersion Molecular Gas Component in Nearby Galaxies, The Astronomical Journal of the American Astronomical Society, 146, Issue 6, article id. 150, 14 pp

2012

• **Ianjamasimanana R.**, de Blok W. J. G., Walter F.; and Heald, G. H., (4/1), 2012, The Shapes of the HI Velocity Profiles of the THINGS Galaxies, The Astronomical Journal of the American Astronomical Society, 144, Issue 4, article id. 96

CONFERENCES, WORKSHOPS & SEMINARS

CONTRIBUTED TALKS

- **MeerKAT HI observations of Hickson Compact Groups** 28/11/2023-30/11/2023
Name: Synergies between J-PAS/J-PLUS and SKA pathfinders in preparation for SKA • **Format:** In person
- **Creating a database for the MeerKAT Galaxy Cluster Legacy Survey (invited)** 30/03/2022-31/03/2022
Name: Science and Research as Drivers for Development -German-African Cooperation in the Post-COVID-19 Era • **Format:** Virtual
- **MeerKAT HI observation of the starburst galaxy NGC 4945** 15/03/2021-19/03/2021
Name: A precursor view of the SKA sky **Link:** <https://skao.eventsair.com/science21/speakers-list> • **Format:** Virtual
- **HI observations of nearby galaxies** 02/12/2019-06/12/2019
Name: Square Kilometre Array Annual Postgraduate Bursary Conference • **Country:** South Africa
- **Low column density outskirts in nearby galaxies** 02/09/2018-12/09/2018
Name: The HI/Story of the Nearby Universe • **Link:** <https://www.astro.rug.nl/historynu/participants.php> • **Country:** The Netherlands
- **Deepest-ever VLA HI Observation of NGC 3198** 26/11/2018-30/11/2018
Name: Square Kilometre Array Annual Postgraduate Bursary Conference • **Country:** South Africa
- **Smooth HI Outskirts in Nearby Galaxies** 27/11/2017-01/12/2017
Name: Square Kilometre Array Annual Postgraduate Bursary Conference • **Link:** https://www.sarao.ac.za/wp-content/uploads/2018/02/postgrad_programme_2017.pdf • **Country:** South Africa
- **Probing the HI distribution in the extreme outskirts of galaxies** 22/05/2017-24/05/2017
Name: Galaxy Cosmology Group Retreat • **Country:** Germany
- **Interstellar medium properties and star formation in nearby galaxies** 25/11/2013-29/11/2013
Name: Square Kilometre Array Annual Postgraduate Bursary Conference • **Country:** South Africa

- **The shapes of the HI velocity profiles of THINGS galaxies** 26/11/2012-30/11/2012
Name: Square Kilometre Array Annual Postgraduate Bursary Conference • **Country:** South Africa
- **Properties of the interstellar medium in nearby galaxies** 21/11/2011-25/11/2011
Name: Square Kilometre Array Annual Postgraduate Bursary Conference • **Country:** South Africa
- **Properties of the interstellar medium in nearby galaxies** 12/07/2011-15/07/2011
Name: The 56th Annual Conference of the South African Institute of Physics (SAIP) • **Link:** <https://events.saip.org.za/event/7/timetable/?view=standard> • **Country:** Germany
- **The THINGS HI Super profiles** 14/06/2011-18/06/2011
Name: Gas in Galaxies: From Cosmic Web to Molecular Clouds • **Link:** <https://wwwmpa.mpa-garching.mpg.de/gas2011/participants.php> • **Country:** Germany
- **The Shapes of THINGS HI Profile** 27/09/2010-01/10/2010
Name: The 55th Annual Conference of the South African Institute of Physics (SAIP) • **Link:** <https://events.saip.org.za/event/3/registrations/participants> • **Country:** Germany
- **Super profiles of THINGS Galaxies** 29/11/2010-03/12/2010
Name: Square Kilometre Array Annual Postgraduate Bursary Conference • **Country:** South Africa

WORKSHOPS

- **Interstellar medium properties and star formation in nearby galaxies (invited)** 30/01/2012-02/02/2012
Name: The 5th SKA Pathfinders H I Survey Coordination Committee (PHISCC) • **Country:** South Africa
- **The shapes of the HI velocity profiles of THINGS galaxies (invited)** 02/02/2011-04/02/2011
Name: The 4th SKA Pathfinders H I Survey Coordination Committee (PHISCC) • **Country:** Australia
- **THINGS HI Super Profiles (invited)** 02/05/2010-06/05/2010
Name: Third UCT/ICRAR/APERTIF Workshop, SKA Pathfinder and Precursor HI Surveys: Commissioning and Simulation Needs • **Country:** South Africa

SEMINARS

- **The extended HI halo of NGC 4945** 01/06/2022
Name: Ruhr University Bochum, Faculty of Physics and Astronomy, Astronomical Institute (AIRUB) Science Seminar
• **Format:** Virtual
- **Data analytics with pandas** 09/04/2021
Name: Galactic Fidelity (GalFid) seminar series • **Country:** South Africa
- **The Alexander von Humboldt Foundation** 27/03/2020
Name: Galactic Fidelity (GalFid) seminar series • **Country:** South Africa
- **Effects of deconvolution and residual scaling on HI velocity dispersion** 11/02/2016
Name: MPIA's Galaxy Coffee Talks • **Country:** Germany

- **Interstellar medium properties and star formation in nearby galaxies** 29/06/2011-30/06/2011
Name: Bi-annual postgraduate student seminar • **Country:** South Africa

POSTERS

CONFERENCES

- **Understanding the role of gas-phase transition, turbulence, and magnetic field in star formation** 20/02/2024-23/02/2024
Name: MeerKAT @5: Celebrating transformational science, engineering, and human capacity development • **Country:** South Africa
- **The neutral atomic hydrogen content of the starburst galaxy NGC 4945** 30/11/2020-04/12/2020
Name: Square Kilometre Array Annual Postgraduate Bursary Conference • **Country:** South Africa
- **Detecting HI in the halos of galaxies using stacking** 29/02/2016-02/03/2016
Name: Network Meeting of the Alexander von Humboldt foundation; Mathematics, Computer Sciences, Theoretical and Astrophysics division • **Country:** Germany
- **Interstellar medium properties and star formation in nearby galaxies** 29/08/2013-01/08/2013
Name: Phases of the Interstellar medium • **Link:** <https://www2.mpia-hd.mpg.de/ismphases/participants.php> • **Country:** Germany
- **The shapes of the HI velocity profiles of THINGS galaxies** 02/12/2009-07/12/2009
Name: Square Kilometre Array Annual Postgraduate Bursary Conference • **Country:** South Africa

AS A PARTICIPANT

CONFERENCES

- **The 66th Lindau Nobel Laureate Meeting** 26/06/2016-01/07/2016
Link: <https://www.lindau-nobel.org/wp-content/uploads/2016/06/Participant-Directory-2016-LQ-DP.pdf> • **Country:** Germany
- **PyConZA: Annual gathering of the South African community using and developing the open-source Python programming language** 04/10/2012-05/10/2012
Link: <https://2012.za.pycon.org> • **Country:** South Africa
- **The 54th Annual Conference of the South African Institute of Physics (SAIP)** 07/07/2009-10/07/2009
Link: <https://2012.za.pycon.org> • **Country:** South Africa

TELESCOPE OBSERVING PROPOSALS

MEERKAT

- **Understanding the role of gas phase transition, turbulence, and magnetic field in star formation** 2022
Key role: Principal investigator • **Total time:** 50 hours
- **Ram pressure stripping of nearby dwarf galaxies: for testing their mass (dark & luminous) and the surrounding IGM density** 2022
Key role: Co-Principal investigator • **Total time:** 33.8 hours

- **A Complete Picture of Gas, Dust, and Stars in Six of the Best-Studied MeerKAT-Visible Galaxies** 2020
Key role: Co-Principal investigator • Total time: 48 hours
 - **Mapping tidal interactions in nearby galaxy groups** 2020
Key role: Co-Principal investigator • Total time: 36 hours
 - **Mapping the extended neutral atomic hydrogen emission and radio-continuum emission in the nearby edge-on galaxy NGC 4945** 2019
Key role: Principal investigator • Total time: 16 hours
 - **Mapping the NGC 7232 galaxy group with MeerKAT-64** 2019
Key role: Co-Principal investigator • Total time: 15 hours
 - **A Search For Diffuse HI Emission In The Nearby Dwarf Irregular Galaxy WLM and IC 1613** 2018
Key role: Principal investigator • Total time: 5 hours
- FAST
- **H I observations of "isolated" Local Group dwarf galaxies** 2022
Key role: Principal investigator • Total time: 25 hours
- VLA
- **The Extreme Outskirts of HI Disks** 2016
Key role: Co-Principal investigator • Total time: 168 hours

TRAINING

SCHOOLS

- IAA-CSIC SEVERO OCHOA SKA OPEN SCIENCE SCHOOL 12/02/2018 - 16/02/2018
Topics: Complete and detailed introduction to Open Science policies, tools, and the ongoing activities of Open Science at the Square Kilometre Array Observatory (SKAO) and the SKA Regional Center Network (SRCNet). • Place: Instituto de Astrofísica de Andalucía (IAA-CSIC), Spain
- RADIO INTERFEROMETRY COURSE 12/02/2018 - 16/02/2018
Topics: Introduction to Radio Science and Radio Interferometry - Fourier theory and Fourier Transform - The Radio Interferometry Measurement Equation (RIME) - Instrumentation and Calibration - Visibility - Imaging, Deconvolution - CASA practical • Place: Rhodes University, South Africa
- EUROPEAN RADIO INTERFEROMETRY SCHOOL (ERIS) 05/09/2011 - 10/09/2011
Topics: Use of the CASA and the AIPS astronomical packages, radio interferometry, data handling and analysis, introduction to the ALMA and the LOFAR telescopes • Place: Rimini, Italy
- SINGLE-DISH RADIO ASTRONOMY SCHOOL 11/09/2011 - 17/09/2011
Topics: Basics of radioastronomy and radio science, technology, science with single-dish observations, radar and probes tracking • Place: Sardinia, Italy

LEADERSHIP ROLES

SOCIAL ORGANIZING COMMITTEE (SOC)

- **AUS379: Dynamical Masses of Local Group Galaxies**

30/03/2022-31/03/2022

Key role: Grant application, abstract reviews, conference program • **Link:** <https://meetings.aip.de/event/20/>

LOCAL ORGANIZING COMMITTEE (LOC)

- **Galactic Fidelity (GalFid) Workschool**

50/11/2018-16/16/2018

Key role: Guest support • **Link:** <https://www.facebook.com/GalFid1/>

LECTURE

- **Data inspection and moment analysis**

13/11/2018

Key role: Training student to inspect and analyse interferometric data cube • **Event:** Galactic Fidelity (GalFid) Workschool • **Link:** <https://www.facebook.com/GalFid1/>

PUBLIC ENGAGEMENT

VISION2024

2023

Aim: We have secured funding from the International Astronomical Union (IAU) to organize workshops in 2023 to prepare students from Madagascar for the 2024 IAU general Assembly to be held in Cape Town in 2024 • **Target audience:** Astronomy students in Madagascar • **Link:** <https://astronomy2024.org/vision-2024/> • **Country:** Madagascar

MASS

08/2018-Present

Aim: Member and Co-founder of the Malagasy Astronomy and Space Science (MASS), a non-profit organization to promote astronomy in Madagascar • **Link:** <https://malagasyastro.wixsite.com/mass> • **Country:** Madagascar

INTERNATIONAL SCIENCE & MEDIA FESTIVAL

2020

Duty: Final Jury for the Silbersalz Science & Media Awards (SILBERSALZ 2020) • **Task:** evaluate documentary films covering a range of scientific disciplines, including natural sciences, social sciences, mathematics, engineering and medicine • **Link:** <https://www.silbersalz-festival.com/en/node/663>

SAAO STARGAZING EVENT

2008-2011

Duty: Assist the public during the South African Astronomical Observatory (SAAO) Saturdays stargazing event **Aim:** Communicate Astronomy to the public • **Country:** South Africa

OUTREACH

2011

Duty: Organized public outreach events for primary school, high school and female scout students in Madagascar **Aim:** Communicate Astronomy to the public • **Country:** Madagascar

REFERENCES

Dr. Lourdes Verdes-Montenegro

Affiliation: Instituto de Astrofísica de Andalucía (IAA-CSIC), Glorieta de la Astronomía s/n, 18008, Granada, Spain

• **E-mail:** lourdes@iaa.es • **Link:** <https://amiga.iaa.csic.es/who-we-are/lourdes-verdes-montenegro/>

Prof. Gyula I. G. Józsa

Affiliation: Max-Planck-Institut für Radioastronomie (MPIfRA), Radioobservatorium Effelsberg, Max-Planck-Strasse 28, 53902, Bad Münstereifel, Germany • **E-mail:** gjozsa@mpifr.de • **Link:** <https://www.mpifr-bonn.mpg.de/person/113798/145960>

Prof. Dr. W. J. G. de Blok

Affiliation: The Netherlands Institute for Radio Astronomy (ASTRON), Oude Hoogeveensedijk 4, 7991 PD, Dwingeloo, The Netherlands • **E-mail:** blok@astron.nl • **Link:** <https://research.rug.nl/en/persons/erwin-de-blok>