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Universiteit Leiden



The handle <http://hdl.handle.net/1887/68466> holds various files of this Leiden University dissertation.

Author: Calistro, Rivera G.

Title: The colours of the extreme universe

Issue Date: 2019-01-10

Publications

First and second author

1. Resolving the ISM at the peak of cosmic star formation with ALMA - The distribution of CO and dust continuum in $z=2.5$ sub-millimetre galaxies
Calistro-Rivera, Gabriela; Hodge, J. A.; Smail, Ian; Swinbank, A. M.; Weiss, A.; Wardlow, J. L.; Walter, F.; Rybak, M.; Chen, Chian-Chou; Brandt, W. N.; Coppin, K.; da Cunha, E.; Dannerbauer, H.; Greve, T. R.; Karim, A.; Knudsen, K. K.; Schinnerer, E.; Simpson, J. M.; Venemans, B.; van der Werf, P. P. 2018, *ApJ*, 863, 56C.
2. The LOFAR window on star forming galaxies and AGNs - curved radio SEDs and IR-radio correlation at $0 < z < 2.5$,
Calistro-Rivera, Gabriela; Williams, W. L.; Hardcastle, M. J.; Duncan, K.; Röttgering, H. J. A.; Best, P. N.; Brügger, M.; Chyzy, K. T.; Conzelmann, C. J.; de Gasperin, F.; Engels, D.; Gürkan, G.; Intema, H. T.; Jarvis, M. J.; Mahony, E. K.; Miley, G. K.; Morabito, L. K.; Prandoni, I.; Sabater, J.; Smith, D. J. B.; Tasse, C.; van der Werf, P. P.; White, G. J. 2017, *MNRAS*, 469, 3468C.
3. AGNfitter: A Bayesian MCMC Approach to Fitting Spectral Energy Distributions of AGNs,
Calistro-Rivera, Gabriela; Lusso, Elisabeta; Hennawi, Joseph F.; Hogg, David W., 2016, *ApJ*, 833, 98C.
4. Resolved [CII]/CO/FIR continuum multi-tracer study of two $z = 3$ dusty, star-forming galaxies
Rybak, Matus; **Calistro-Rivera, Gabriela**; Hodge J. A. Smail I.; Walter F.; van der Werf, P. E. da Cunha; Chian-Chou Chen; Dannerbauer H. ; Ivison R. J. ; Karim A. ; Simpson J. M.; Swinbank A. M. and Wardlow A. M. et al. 2018, *ApJ*, submitted.
5. LOFAR-Boötes: Properties of high- and low-excitation radio galaxies at $0.5 < z < 2.0$,
Williams W. L. ; **Calistro-Rivera, Gabriela**; Best, P. N.; Hardcastle, M. J.; Röttgering, H. J. A.; Duncan, K. J.; de Gasperin, F.; Jarvis, M. J.; Miley, G. K.; Mahony, E. K.; Morabito, L. K.; Nisbet, D. M.; Prandoni, I.; Smith, D. J. B.; Tasse, C.; White, G. J. et al. 2018, *MNRAS*, 475, 3429W.

Contributing author

6. The Far-Infrared Radio Correlation at low radio frequency with LOFAR/H-ATLAS,
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7. LOFAR/H-ATLAS: the low-frequency radio luminosity-star formation rate relation,
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8. A Spatially Resolved Study of Cold Dust, Molecular Gas, H II Regions, and Stars in the $z = 2.12$ SMG ALESS67.1,
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9. The LOFAR Two-metre Sky Survey. I. Survey description and preliminary data release,
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10. The Lockman Hole project: LOFAR observations and spectral index properties of low-frequency radio sources,
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12. The LOFAR Two-metre Sky Survey. II. First data release
Shimwell, T. W., et al. (including **Calistro-Rivera, Gabriela**) 2018, *A&A*, in press
13. Overdensity of SMGs around the $z=2.3$ MAMMOTH-1 nebula – The environment and the powering of an ELAN
Arrigoni Battaia F., et al. (including **Calistro-Rivera, Gabriela**) 2018, *A&A*, in press
14. LoTSS/HETDEX: Disentangling star formation and AGN activity in lensed radio-quiet quasars
Stacey H. R., et al. (including **Calistro-Rivera, Gabriela**) 2018, *A&A*, in press
15. ALMA reveals evidence for spiral arms, bars and rings in high-redshift submillimeter galaxies
Hodge, J. et al. (including **Calistro-Rivera, Gabriela**) 2018, *ApJ*, submitted

Selected non-refereed publications:

16. Resolving the Interstellar Medium at the Peak of Cosmic Star Formation
Calistro-Rivera, Gabriela & Hodge, Jacqueline 2018, *Published in The Messenger (ESO), No. 173 (Sept 2018)*
17. Fitting Spectral Energy Distributions of AGN - A Markov Chain Monte Carlo Approach
Calistro-Rivera, Gabriela 2014, *Published in Proceedings of the IAU Symposia, IAU S304*

Curriculum Vitae

I was born on 24 March, 1990 in Huacho, a small coast city two hours away from Lima, the capital of Perú. I was raised by my grandparents in a peaceful neighbourhood right in front of the ocean. I went to my first school years here, to the Maria Auxiliadora primary school. At the age of 8, I moved with my parents to the capital city, Lima, and at the age of 10, I was accepted in the Peruvian-German School Alexander von Humboldt. There, I had the opportunity to learn several languages and was educated within a multicultural system with excellent Peruvian and German teachers in both STEM and humanities areas. Throughout my childhood, my father often shared with me his fascination for the enigmatic phenomena in the Universe, such as black holes and special relativity, and these stories woke up my curiosity for the Cosmos from early on. Although in most high-school years I had a preference for literature and arts, the last school years gave me the opportunity to attend inspiring Physics and Maths classes. The physics lectures by Herr Edgar Droll gave me the opportunity to learn about more advanced topics in Physics, introducing me to my first science magazines (Spektrum der Wissenschaft) and Physics TV-shows (Alpha-Centauri), reinforcing in this way my interest for the challenging aspects of Physics and Astronomy.

After graduating from the German Abitur in the Fall of 2007, I decided to study Physics. I was offered a full scholarship by the German Academic Exchange Service (DAAD) to move to Germany to embark my Bachelor studies. This scholarship was given to a group of high-school students selected among German-international schools from 120 different countries. This gave me the opportunity to start my undergraduate studies in the fall of 2008 in the Faculty of Physics and Astronomy of the University of Heidelberg. My first Bachelors research project was the morphological study of Ultra Compact Dwarf Galaxies under the supervision of Dr. Thorsten Lisker (Astronomisches Recheninstitut, Heidelberg). I graduated in 2012, with a thesis project on theoretical cosmology titled ‘The Lensed Temperature Anisotropy of the CMB’, as part of the group led by Prof. Matthias Bartelmann (Institute for Theoretical Astrophysics, Heidelberg). In the fall of 2012, I was awarded a DAAD full scholarship to pursue my Masters of Science degree in Physics at the Heidelberg University. In 2013, I joined the Max Planck Institute for Astronomy to conduct my Master thesis project on the spectral energy distributions of AGN under the supervision of Dr. Joseph Hennawi and Dr. Elisabeta Lusso. In this period, I had the opportunity to join observing trips to the La Silla ESO observatories, in Chile, and to present the results of my thesis in Germany, Armenia, and Australia.

In 2014, I was offered a PhD position at the Leiden Observatory. My PhD work focused on the panchromatic emission of star forming galaxies and active galactic nuclei across cosmic time, focusing on the characterization of fundamental properties for the evolution of galaxies such as star formation and black hole growth. Here, I worked as part of the low-frequency radio group led by Prof. Huub Röttgering and the dusty galaxies group, led by Dr. Jacqueline Hodge. As a PhD student, I became a member of two major collaborations studying radio and the sub-mm emission of galaxies, the LOFAR Surveys and the ALESS collaboration. During my PhD, I was able to participate in observing runs in La Palma, Spain, and to give invited and contributed talks on my research in numerous conferences and institutions, including Argentina, Colombia, France, Germany, Italy, the Netherlands, Japan, Spain, UK and USA. During my PhD, I had the opportunity to be teaching assistant to the course ‘Galaxies: Structure and Dynamics’ given by Dr. Rychard Bouwens and to develop and supervise three undergraduate projects.



Acknowledgments

There is a long list of people who have inspired, motivated, and accompanied me in the last years, making my path towards the end of my education as an astrophysicist one of the most exciting parts of my life.

Going back to the beginning, this story would have not started without my exceptional and inspiring Physics and Maths teachers during high-school. Vielen Dank an Herrn Droll, Herrn Lanzendörfer und Herrn Biernoth. Moving to Germany and carrying out my undergraduate studies at the Heidelberg University would have not been possible without the support of the DAAD program. I would like to thank the DAAD for giving me this unique opportunity. In this period, I was also lucky to meet the Willmann family. My Gasteltern, Valentin and Ortrud Willmann, were always there for me as I started my life as an independent adult. Lieber Valentin und liebe Ortrud, vielen Dank für eure Unterstützung in diesen Jahren und ich hoffe wir bleiben in Kontakt in die Zukunft. Through my University years in Heidelberg they were many great professors and supervisors I have learn so much from, and I am thankful to all of them. I would like to especially thank Prof. Matthias Bartelmann, who inspired and motivated me to persevere through the difficult parts of my career, always with an extremely contagious passion for science and unique wisdom and modesty. Lieber Matthias, vielen Dank für die wunderbare Vorlesungen, Räte und Unterstützung. Liebe Physiker Freunde in Heidelberg, ohne euch hätte ich die Analysis-zettel und die harte Bar3/Bar133/ Küche Nächte nicht überleben/erleben können, vielen Dank für die viele wunderbare Jahre. Pingüis, con ustedes me llegó la familia a Alemania. Gracias por hacerse querer tanto, por darle color a nuestra época de maestría y ser la mejor compañía de esas que sabes que no se acaban. Sofi y Elena, muchísimas gracias por la hermandad y las mil aventuras que compartimos durante estos años, y espero que vengan muchas más.

My research career in observational astronomy started as part of the ENIGMA group at MPIA in Heidelberg. Thanks to all my ENIGMates from whom I learned so much and who welcomed me and made me feel part of the group from the first moment. Beta Lusso, grazie per avermi aiutato a formare le basi per la mia ricerca e per essere ancora sempre disponibile per me. Spero di poter rimanere la tua collaboratrice anche nel futuro. Joe Hennawi, my career would have been half as it is without having you as my supervisor. Thank you so much for teaching me how to conduct good science, for always motivating and valuing my work, and for being a truly caring and generous supervisor to me. Thank you as well for all your support to my future career, and I hope to have the pleasure to have you as a collaborator in future projects.

My years as a PhD student at the Leiden Sterrewacht has given me the opportunity to meet many wonderful people. I am very grateful to Xander Tielens, whose support was crucial throughout my PhD. Thank you, Xander, for your advice and all your efforts to help me construct the best environment possible for my research. I cannot express my gratitude enough to Jacqueline Hodge for welcoming me in her group, introducing me to the ALMA research and teaching me so much about the scientific career. I feel very lucky to be your first PhD student and I hope we remain close collaborators in the future. I would also like to thank Huub Röttgering for giving me the opportunity to embark a PhD, for welcoming in the LOFAR group, and for giving me his trust to choose my own research path.

All work in research is a collaborative work, and the chapters presented here would have not been possible without the LOFAR and ALESS collaborations. Thanks to all members of these collaborations, to those in Leiden and around the world, who have contributed with many insightful comments and suggestions to this thesis. I would like to specially thank Ian Smail and Martin Hardcastle, for their crucial guidance throughout the projects carried out in this thesis and their support and valuable advice for my future career.

Life in Leiden would have been half as happy, without the wonderful friends and colleagues who accompanied me in these years. Thanks to all the members the LOFAR group and Dusty Galaxies groups at the Sterrewacht for the interesting and fun group-meetings. Special thanks go to my co-supervisees Hiddo Algera and Dieuwertje van den Kamp, for helping me with the Dutch translation of the summary of this thesis. Wendy Williams, it has been a pleasure to have you as a collaborator. Thank you for your company both in Leiden and Hertfordshire and for your contributions to the development of AGNfitter. Matus Rybak, thank you for the many interesting conversations about science and life, and for all your support in this last period of my PhD. I have been very lucky to have you as a close collaborator and friend, and I hope we remain in contact. I would like to thank all my Leiden colleagues and friends for the many interesting and fun scientific and non-scientific discussions and useful advice on different topics, especially Jarle Brinchman, Rychard Bouwens, Michael Maseda, Allison Hill, Corentin Schreiber, Yannik Bahe, Julius Donnert, Alexandra Candian and Themiya Nanayakkara. I would like to thank as well the ALLEGRO team, Luke Maud, Liz Gomez, Yanett Contreras, Carmen Toribio and Daniel Harsono, for your technical advice on my ALMA research and fun lunch conversations. Leo Burtscher, es hat mich sehr gefreut, dass Du in Leiden angekommen bist und wir unsere AGN Begeisterung zusammen ausdrücken konnten. Vielen Dank für deine motivierende Wörter und die viele interessante Diskussionen über alles Mögliche, von der gemeinsamen Entwicklung von Galaxien und AGN, bis boodschappen doen op de markt.

I would like to thank the Leiden PhDs from the earlier generations, Irene San José García, Matteo Brogi, Mattia Fumagalli, Renske Smit, Thanja Lamberts, Berenice Pila Díez, Monica Turner, Bernard van Heck, Andra Stroe, and Alex Rimoldi, who quickly welcomed me to the PhD community and shared with me their wisdom on this process. I'm very glad I overlapped with you even if only for a short time. Mattia, I also had the pleasure to be you office-mate and even house-mate for short but memorable times (and even musical partner for a day). Thanks to you and Anna for all the adventures and friendship! Andra and Renske, thank you both so much for all your support in the last period of my PhD. You are great examples to follow as scientists and I feel very lucky to have you as friends.

I would also like to thank all my fellow PhD students that embarked in this adventure together with me. Andrew, Ann-Sophie, Chris, Eva, Jorryt, Mike, Mason, Edwin, thanks for the fun conversations during coffee breaks, the parties and the shared adventures. I really cherish the days back to the 11th floor, and would like to thank the gang, Aayush, Mieke and Eleonora, for the great time we shared in that office, that luckily kept us together till this date. Thanks so much to the 'mostly' italian crew, Maria Cristina, Alberto, Tomasso, Valeria, Francesco, Gabriella, Kim, Christos, Soumajit, for the fun dinners and evenings. Caro Fra, grazie per tutte le serate insieme e le storie divertenti. Sono molto contenta che la nostra amicizia sia sopravvissuta alla distanza. A mis queridos latino/hispanos, Santi, Pablo, Igone, Poshito, Pedro, Jorge, Lina, Francisca, gracias por todos los borrels, fiestas, e infinitas risas, y por ser una mini-latinoamérica entera dentro del STRW. Kathy, gracias por los viajes inolvidables y sobre todo por la peruanidad que me trajiste, que hizo mis últimos dos años del doctorado muchísimo más rico. Josh, Luis, Aurelien, it was a pleasure to share an office with you and I wish I had been less busy as an officemate to get to know you better.

Ken, you are not only my paranymph on the defense day, but you have been it since you arrived at the STRW. Thank you so much for being the friend I could share my SED enthusiasm with, for all the fun, and for your help and advice, in science and life. Cristi, tu llegada a Leiden hizo de mi doctorado mil veces más feliz. Ya lo logramos dos veces, pero quisiera poder ser tu colega de grupo para siempre. Pero aunque eso nos pueda fallar en el futuro, estoy segura que nuestra amistad sí quedará intacta hasta que seamos viejitas.

A mis chicas de la vida entera, Pamela, Nicole, Francis, Adri, Marianne, Christel, Alejandra, Andrea, Yael, aunque las he tenido lejos, a algunas más que a otras, su amistad siempre me ha acompañado y fortalecido en todos estos años. Las quiero y siempre las tengo presentes. Un agradecimiento especial para Adriana Verán por leer y corregir pacientemente la ortografía oxidada de la versión original del resumen en castellano. Cari Angela, Robi e Leo, grazie per avermi sempre fatto sentire a casa. Sono molto grata che questi anni non solo mi abbiano dato il mio compagno ma anche a un'intera bellissima famiglia che ho sentito subito come la mia stessa. Abuelita Engracia, tía Gloria, tío Aldo, André y Melysa, les agradezco todo el cariño que nos brindan siempre.

Nada de esto hubiera sido posible sin el apoyo incondicional de mi familia. Tío Toño, gracias por todas las buenas recomendaciones de libros, y por estar siempre allí pendiente, para mí y para Leo. Mamá Chela, fue contigo y papá José que aprendí mis primeros números y letras, y resolví mis primeras sumas y restas. Fue allí que comenzó todo. No hay palabras suficientes para agradecer todo lo que has hecho por mí, mamita. Leo, tenerte como hermano es una de las cosas más bonitas en mi vida. Estoy muy orgullosa de ti, admiro tu talento, tu sentido del humor, tu pasión por las cosas que te gustan y estoy muy agradecida por ser tan cercana a ti, a pesar de la distancia. Mamá y papá, sin su esfuerzo constante, la confianza que me tienen, y el ejemplo que me dan, yo no sería nada. Este doctorado es de ustedes. Es el fruto de todo lo que me han enseñado y de todo lo que han sacrificado para poder darme las mejores oportunidades posibles. Gracias sobre todo por el amor que nos brindan, que me ha hecho crecer como una persona completa y feliz. Mami, la fuerza y perseverancia que ha sido vital para terminar este doctorado, la he heredado de ti. Gracias por ser el ejemplo de mujer fuerte e inteligente que yo aspiro a ser. Papi, tus cuentos de agujeros negros y gemelos de edades diferentes son los responsables de esta historia. Gracias por creer tan ciegamente en tus hijos, por querernos tanto, y por habernos enseñado a soñar siempre en grande. Leo y yo somos muy afortunados de tenerlos como papás.

Marco, avverti conosciuto é il miglior regalo che l'astronomia mi abbia portato. Il tuo potere di farmi sempre ridere ha reso questi ultimi anni i piú felici, e la tua intelligenza e determinazione mi ispirano per diventare anche io sempre migliore. Grazie per essere stato la mia forza costante durante i periodi difficili di questo dottorato. Senza la tua compagnia e il tuo consiglio, questo percorso sarebbe stato molto grigio. Grazie per essere il compagno perfetto per me, per i viaggi e le storie del futuro, e benvenuti siano tutte le sfide impossibili, inverni piovosi e i jetlags terribili, che sono belli mentre li viviamo insieme.