
SERGIO MARTÍN RUIZ

Curriculum Vitae

Harvard-Smithsonian Center for Astrophysics
60 Garden Street, MS 78
Cambridge, MA 02138
USA

Phone: +1 617-496-7932
(cell) +1 617-407-1848
Fax: +1 617-496-7554
E-mail: smartin@cfa.harvard.edu

PERSONAL DATA

Nationality: Spanish

Birth: 24 Nov. 1977, Madrid (Spain)

Languages spoken: Spanish, English and French

EMPLOYMENT

- 2006 – ... SMA fellowship at Harvard-Smithsonian Center for Astrophysics, Cambridge, USA.
2002 – 2006 Astronomer on Duty and PhD student at the Instituto de Radioastronomía Milimétrica, Pico Veleta Observatory, Granada, Spain.
2001 – 2002 Observatorio Astronómico Nacional, Madrid, Spain.

EDUCATION

- 2006 PhD Thesis at Universidad Complutense de Madrid and Instituto de Radioastronomía Milimétrica at Granada
Title: *“Química y física del medio interestelar en las regiones centrales de galaxias”*
Supervised by Rainer Mauersberger & Jesús Martín-Pintado
- 2003 Master Thesis in Astronomy at Universidad Complutense de Madrid and Instituto de Radioastronomía Milimétrica at Granada
Title: *“Primera detección de SO₂, NO y NS extragaláctico”*
Supervised by Rainer Mauersberger
- 1995 – 2001 *“Licenciatura”* in Physics at Universidad Complutense de Madrid

ATTENDED SCHOOLS

- 2002 Third IRAM Millimeter Interferometry School
Grenoble, France, 30 September - 5 October
- 2001 IRAM Summerschool 2001: mm Observing Techniques and Applications
Pradollano(Sierra Nevada), Spain, 14-21 September

TEACHING EXPERIENCE

- 2007 Teaching assistant for the SMA student project part of the Harvard University Course Ay191 (Astrophysics Laboratory, Prof. Thaddeus)
- 2005 Teaching assistant and local organizing comitee
IRAM Summerschool 2005: mm Observing Techniques and Applications
Pradollano (Sierra Nevada), Spain, 30 September- 7 October
- 2003 Teaching assistant and local organizing comitee
IRAM Summerschool 2003: mm Observing Techniques and Applications
Pradollano (Sierra Nevada), Spain, 3-10 October

AWARDS

- 2009 Winner of the 1st SMA Image Contest

OBSERVING EXPERIENCE

IRAM 30 m Telescope	heterodyne receivers & bolometers
Swedish-ESO Submillimetre Telescope	heterodyne receivers
James Clerk Maxwell Telescope	heterodyne receivers
IRAM PdBI	interferometer
SMA	interferometer
MOPRA	heterodyne receivers

REFEREEING ACTIVITIES

- 2008 – 2009 CfA and ASIAA Submillimeter Array Time Allocation Committee

RESEARCH INTERESTS

- Physics of the ISM in the nuclei of galaxies and in the Galactic Center
- Starburst evolution and AGN connection
- Extragalactic chemistry
- Molecular spectroscopy

SOFTWARE DEVELOPEMENT

- Active developper of the new multi-platform data reduction package MASSA/MADCUBA in JAVA, contributing the molecular database for line identification and LTE modelling.

PUBLICATIONS

REFEREED PUBLICATIONS

24. *“The SMA 1 mm line survey of Arp 220”*
Martín, S. et al.
In preparation
23. *“Molecular tracers of star formation in Galaxies: The isotopologues view.”*
Martín, S., Wu, J., Martín-Pintado, J.
In preparation
22. *“Photodissociation traces in NGC 253”*
Martín, S., Martín-Pintado, J., Viti, S.
Submitted to ApJ
21. *“Extragalactic CS survey”*
Bayet, E., Aladro, R., **Martín, S.**, Viti, S., Martín-Pintado, J.
Submitted to ApJ
20. *“SMA Observations of CO (2-1) emission in the Nearby Starburst NGC 6000”*
Martín, S., George, M.R., Wilner, D., Espada, D.
Submitted to AJ
19. *“Laboratory and Astronomical Detection of Cyanid Acid, HOCN”*
Brünken, S., Belloche, A., **Martín, S.**, Gottlieb, C.A., McCarthy, M.C., Verheyen, L.,
Menten, K.M., Thaddeus, P.
Submitted to ApJ
18. *“Tentative Detection of two new interstellar molecules: Cyano Ketene and Methylene Cyclo Propene”*
Requena-Torres, M.A., Martín-Pintado, J., **Martín, S.**, Morris, M.R.
Submitted to ApJ
17. *“Unveiling the Main Heating Sources in the Cepheus a HW2 Region”*
Jiménez-Serra, I., Martín-Pintado, J., Caselli, P., **Martín, S.**, Rodríguez-Franco, A.,
Chandler, C., Winters, J.M.
2009, ApJ, 703, L157
16. *“HNC0 Abundances in Galaxies: Tracing the Evolutionary State of Starbursts”*
Martín, S., Martín-Pintado, J., Mauersberger, R.
2009, ApJ, 694, 610
15. *“Tracing high density gas in starburst galaxies”*
Bayet, E., Lintott, C., Viti, S., Martín-Pintado, J., **Martín, S.**, Williams, D.A., Rawlings,
J.M.C.
2008, ApJ, 685, L35

14. “*Tracing shocks and photodissociation in the Galactic center region*”
Martín, S., Requena-Torres, M.A., Martín-Pintado, J., Mauersberger, R.
2008, *ApJ*, 678, 245,
13. “*A Multi-transition HCN and HCO⁺ Study of 12 Nearby Active Galaxies: Active Galactic Nucleus versus Starburst Environments*”
Krips, M., Neri, R., García-Burillo, S., **Martín S.**, Combes, F., Graciá-Carpio, J., Eckart, A.
2008, *ApJ*, 677, 262
12. “*The Galactic Center: The Largest Oxygen-bearing Organic Molecule Repository*”
Requena-Torres, M.A., Martín-Pintado, J., **Martín, S.**, Morris, M.
2008, *ApJ*, 672, 352
11. “*Luminous HC₃N line and HCN/HCO⁺ ratio in NGC4418. Buried AGN or nascent starburst?*”
Aalto, S., Monje, R., **Martín, S.**
2007, *A&A*, 475, 479
10. “*Organic Chemistry in the Dark Clouds L1448 and L183: A Unique Grain Mantle Composition*”
Requena-Torres, M.A., Marcelino, N., Jiménez-Serra, I., Martín-Pintado, J., **Martín, S.**, Mauersberger, R.
2007, *ApJ*, 655, L37
9. “*The First Measurements of the Electron Density Enhancements Expected in C-Type Shocks*”
Jiménez-Serra, I., Martín-Pintado, J., Viti, S.; **Martín, S.**, Rodríguez-Franco, A., Faure, A., Tennyson, J.
2006, *ApJ*, 650, L135
8. “*Organic molecules in Galactic Center: Hot core chemistry without hot cores*”
Requena-Torres, M.A., Martín-Pintado, J., Rodríguez-Franco, A., **Martín, S.**, Rodríguez-Fernández, N. J., de Vicente, P.
2006, *A&A*, 455, 971
7. “*A 2 mm spectral line survey of the starburst galaxy NGC 253*”
Martín, S., Mauersberger, R., Martín-Pintado, J., Henkel, C., García-Burillo, S.
2006, *ApJS*, 164, 450
6. “*Methanol detection in M 82*”
Martín, S., Martín-Pintado, J., Mauersberger, R.
2006, *A&A*, 450, L13
5. “*A new intermediate mass protostar in the Cepheus A HW2 region*”
Martín-Pintado, J., Jiménez-Serra, I., Rodríguez-Franco, A., **Martín, S.**, Thum, C.
2005, *ApJ*, 628, L61

4. “*Grain Evolution across the Shocks in the L1448-mm Outflow*”
Jiménez-Serra, I., Martín-Pintado, J., Rodríguez-Franco, A., **Martín, S.**
2005, *ApJ*, 627, L121
3. “*Sulfur Chemistry and Isotopic Ratios in the Starburst Galaxy NGC 253*”
Martín, S., Martín-Pintado, J., Mauersberger, R., Henkel, C., García-Burillo, S.
2005, *ApJ*, 620, 210
2. “*First detections of extragalactic SO₂, NS and NO*”
Martín, S., Mauersberger, R., Martín-Pintado, J., García-Burillo, S., Henkel, C.
2003, *A&A*, 411, L465
1. “*Triggered massive-star formation at the border of the H II Region Sh 104*”
Deharveng, L., Lefloch, B., Zavagno, A., Caplan, J., Whitworth, A. P., Nadeau, D.,
Martín, S.
2003, *A&A*, 408, L25

OTHER PUBLICATIONS

2. “*Results of the tests of the semitransparent vane*”
Martín-Pintado, J., Navarro, S., **Martín, S.**, Carter, M.
2003, ALMA Amplitude Calibration Reports (<https://wikio.nrao.edu/bin/view/ALMA/CalAmp>)
1. “*Test of the semitransparent vane calibration scheme with the IRAM 30-m telescope*”
J. Martín-Pintado, S. Navarro, M. Carter, W. Brunswig, J. Cernicharo, A. Sievers, A.
Rodríguez, J.R. Pardo, **S. Martín**
2004, ALMA Amplitude Calibration Report (<https://wikio.nrao.edu/bin/view/ALMA/CalAmp>)

CONFERENCE PROCEEDINGS

6. “*The Chemical Evolution of Starbursts*” **Sergio Martín** in Proceedings of The Starburst-AGN Connection. 27-31 October 2008, at Shanghai Normal University, Shanghai, China. Ed. by Weimin Wang, Zhaoqing Yang, Zhijian Luo, and Zhu Chen. ASP Conference Series, Vol. 408. San Francisco: Astronomical Society of the Pacific, 2009., p.322 (*Oral contribution*).
5. “*The Galactic Center as nearby extragalactic chemical laboratory*”
Martín, S., Requena-Torres, M.A., Martín-Pintado, J., Mauersberger, R.
2007, *Ap&SS*, 365
4. “*The time evolution of shock chemistry. Revealing the molecules ejected from grains*”
Jiménez-Serra, I., Martín-Pintado, J., Rodríguez-Franco, A., **Martín, S.** in Proceedings of the dusty and molecular universe: a prelude to Herschel and ALMA, 27-29 October 2004, Paris, France. Ed. by A. Wilson. ESA SP-577, Noordwijk, Netherlands: ESA Publications Division, ISBN 92-9092-855-7, 2005, p. 371 - 372

3. *“The 2 mm line survey of the starburst galaxy NGC 253: sulfur chemistry”* **Martín, S.**, Martín-Pintado, J., Mauersberger, R., Henkel, C., García-Burillo, S. in Proceedings of the dusty and molecular universe: a prelude to Herschel and ALMA, 27-29 October 2004, Paris, France. Ed. by A. Wilson. ESA SP-577, Noordwijk, Netherlands: ESA Publications Division, ISBN 92-9092-855-7, 2005, p. 297 - 298
2. *“Extragalactic sulfur chemistry”* **Sergio Martín** in Proceedings of the evolution of starbursts, 16-20 August, 2004, Bad Honnef, Germany. Ed. by S. Hüttemeister, E. Manthey, D. Bomans & K. Weis. AIP conference proceedings, 2005, Volume 783, Issue 1, p. 148 - 154
1. *“The spectral line survey of NGC 253”* **Martín, S.**, Mauersberger, R., Martín-Pintado, J., Henkel, C., García-Burillo, S. in The Dense Interstellar Medium in Galaxies, Proceedings of the 4th Cologne-Bonn-Zermatt Symposium, Zermatt, Switzerland, 22-26 September 2003. Edited by S.Pfalzner, C. Kramer, C. Staubmeier, and A. Heithausen. Springer proceedings in physics, Vol. 91. Berlin, Heidelberg: Springer, 2004, p.173

OTHER CONTRIBUTIONS

CONFERENCE CONTRIBUTIONS

20. “*Chemical Composition in Galactic Nuclei: From Galactic Center to ULIRGs*” **Sergio Martín** in Millimeter and Submillimeter Astronomy at High Angular Resolution, 8-12 Jun 2009, Taipei, Taiwan (*Oral contribution*).
19. “*First CO imaging of NGC1482 A unique early-type galaxy with a Superwind Feedback*” Ananda Hota, Daniel Espada, Satoki Matsushita, **Sergio Martín**, Kotaro Kohno, Soo-Chang Rey, Youichi Ohyama, Dinh-V-Trung, D.J. Saikia in Millimeter and Submillimeter Astronomy at High Angular Resolution, 8-12 Jun 2009, Taipei, Taiwan (*Poster contribution*).
18. “*Chemical Composition in Galactic Nuclei: From Galactic Center to ULIRGs*” **Sergio Martín** in CfA SMA Science Symposium 2009, 15 Apr 2009, Cambridge, MA, USA (*Oral contribution*).
17. “*Spectral line surveys in the ALMA era*” **Sergio Martín** in Impact of ALMA on the Spanish extragalactic astronomy, 11-13 Feb 2009, Granada, Spain (*Oral contribution*).
16. “*The chemical evolution of starbursts*” **Sergio Martín** in The Starburst-AGN Connection Conference, 27-31 Oct 2008, Shanghai, China (*Oral contribution*).
15. “*Molecular Tracers in Galaxies*” **Sergio Martín** in Interstellar Medium and Star formation with ALMA: A workshop in the honour of Tom Wilson, 16-17 June 2008, Madrid, Spain (*Oral contribution*).
14. “*The extragalactic molecular universe*” **Sergio Martín** in The Molecular Universe: an International Meeting on the Physics and Chemistry of the Interstellar Medium, 5-8 May 2008, Arcachon, France (*Oral contribution*).
13. “*Observing the Molecular Composition of Galaxies*” **Sergio Martín** in Bioastronomy 2007, Molecules, Microbes and Extraterrestrial Life, 16 - 20 July 2007, San Juan, Puerto Rico (*Invited Talk*).
12. “*The Galactic Center as nearby extragalactic chemical laboratory through Molecular line surveys*” **Sergio Martín** in Science with ALMA: a new era for Astrophysics, 13 - 17 November 2006, Madrid, Spain (*Oral contribution*).
11. “*Grain processing along the evolution of shocks in L1448-mm/IRS3*” Jiménez-Serra, I., Martín-Pintado, J., Rodríguez-Franco, A., **Martín, S.** in Astrochemistry Throughout the Universe: Recent Successes and Current Challenges, IAU symposium 231 29 Aug - 2 Sep 2005, Asilomar, Monterey, California, USA (*Poster contribution*).
10. “*Alcohol chemistry in the Galactic Center molecular clouds. A gigantic Hot Core*” Requena Torres, M.A., Martín-Pintado, J., Rodríguez-Franco, A., **Martín, S.**, Rodríguez-Fernández, N.J. in Astrochemistry Throughout the Universe: Recent Successes and Current Challenges, IAU symposium 231 29 Aug - 2 Sep 2005, Asilomar, Monterey, California, USA (*Poster contribution*).

9. “*Extragalactic molecular line surveys: the starburst galaxy NGC 253*” **Martín, S.**, Mauersberger, R., Martín-Pintado, J., Henkel, C., García-Burillo, S. in *Astrochemistry Throughout the Universe: Recent Successes and Current Challenges*, IAU symposium 231 29 Aug - 2 Sep 2005, Asilomar, Monterey, California, USA (*Poster contribution*)
8. “*Extragalactic spectral line surveys: the starburst galaxy NGC 253*” **Martín, S.**, Mauersberger, R., Martín-Pintado, J., Henkel, C., García-Burillo, S. in *Submillimeter Astronomy: in the era of the SMA* 13-16 June 2005, Cambridge, USA (*Poster contribution*)
7. “*The time evolution of shock chemistry. Revealing the molecules ejected from grains*” Jiménez-Serra, I., Martín-Pintado, J., Rodríguez-Franco, A., **Martín, S.** in *Proceedings of the dusty and molecular universe: a prelude to Herschel and ALMA*, 27-29 October 2004, Paris, France. Ed. by A. Wilson. ESA SP-577, Noordwijk, Netherlands: ESA Publications Division, ISBN 92-9092-855-7, 2005, p. 371 - 372 (*Poster contribution*)
6. “*The 2 mm line survey of the starburst galaxy NGC 253: sulfur chemistry*” **Martín, S.**, Martín-Pintado, J., Mauersberger, R., Henkel, C., García-Burillo, S. in *Proceedings of the dusty and molecular universe: a prelude to Herschel and ALMA*, 27-29 October 2004, Paris, France. Ed. by A. Wilson. ESA SP-577, Noordwijk, Netherlands: ESA Publications Division, ISBN 92-9092-855-7, 2005, p. 297 - 298 (*Poster contribution*)
5. “*Extragalactic sulfur chemistry*” **Sergio Martín** in *Proceedings of the evolution of starbursts*, 16-20 August, 2004, Bad Honnef, Germany. Ed. by S. Hüttemeister, E. Manthey, D. Bomans & K. Weis. AIP conference proceedings, 2005, Volume 783, Issue 1, p. 148 - 154 (*Oral contribution*)
4. “*The 2mm line survey of the starburst galaxy NGC 253*” **Martín Ruiz, Sergio** in 1^{er} Congreso Nacional de Astrofísica Molecular: Una visión general del potencial de los grupos de química españoles antes los nuevos desafíos de la Astrofísica., held in Ciudad Real, Spain, 1-4 December, 2003, p45 (*Oral contribution*)
3. “*The spectral line survey of NGC 253*” **Martín, S.**, Mauersberger, R., Martín-Pintado, J., Henkel, C., García-Burillo, S. in *The Dense Interstellar Medium in Galaxies*, Proceedings of the 4th Cologne-Bonn-Zermatt Symposium, Zermatt, Switzerland, 22-26 September 2003. Edited by S.Pfalzner, C. Kramer, C. Staubmeier, and A. Heithausen. Springer proceedings in physics, Vol. 91. Berlin, Heidelberg: Springer, 2004, p.173 (*Poster contribution*)
2. “*A molecular line survey of the starburst galaxy NGC 253*” **Martín Ruiz, Sergio** in *The XXXIII Young European Radio Astronomers Conference (YERAC)*, Bonn, Germany 16-19 September, 2003 (*Oral contribution*)
1. “*A Spectral line sweep at $\lambda = 2\text{mm}$ toward NGC 253*” Rainer Mauersberger, **Sergio Martín**, Christian Henkel, Jesús Martín-Pintado in *Astronomische Nachrichten*, Supplementary Issue 2, Vol. 324, Short Contributions of the Annual Scientific Meeting of the Astronomische Gesellschaft in Berlin, Germany, 23-28 September, 2002, p.98 (*Poster contribution*)

INVITED TALKS

6. 16 Jul 2007, "*Observing the Molecular Composition of Galaxies*"
Bioastronomy 2007, Molecules, Microbes and Extraterrestrial Life, San Juan, Puerto Rico
5. 21 Nov 2006, "*Extragalactic chemistry*"
AMIGA meeting, IAA, Granada, Spain
4. 20 Oct 2006, "*Extragalactic chemistry: mm and submm observations*"
RG Division Lunch Talk, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA
3. 19 Jul 2005, "*Chemical complexity in galaxies: The NGC 253 line survey*"
Joint Astronomy Centre, Hilo, HI, USA
2. 30 Jun 2004, "*Sulphur chemistry in the the starburst galaxy NGC 253*"
Ruhr-Universität Bochum, Germany
1. 17 Sep 2003, "*The 2mm line survey of NGC 253*"
Max-Planck-Institut für Radioastronomie, Bonn, Germany