

CURRICULUM VITAE

Dr. Dr. h.c. Natascha M. Förster Schreiber

CONTACT

Max-Planck-Institut für extraterrestrische Physik
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EDUCATION

Dr. rer. nat. (Astrophysics): 05/1999

Ludwig-Maximilians-Universität München & Max-Planck-Institut für extraterrestrische Physik Garching, Germany
THESIS: *Near-infrared imaging spectroscopy and mid-infrared spectroscopy of M 82: revealing the nature of star formation activity in the archetypal starburst galaxy*
ADVISOR: Prof. Dr. Reinhard Genzel

M. Sc. (Physics): 03/1995

Université de Montréal, Département de Physique, Montréal, Canada
THESIS: *Étude photométrique et spectroscopique de la galaxie à sursaut de formation d'étoiles M 82 par imagerie infrarouge*
ADVISORS: Prof. Dr. Daniel Nadeau, Prof. Dr. René Doyon

B. Sc. (Mathematics-Physics): 06/1992

Université de Montréal, Département de Physique, Montréal, Canada

PROFESSIONAL POSITIONS

Since 01/2013: **Senior scientist (tenured)**

Max-Planck-Institut für extraterrestrische Physik
Postfach 1312, 85741 Garching b. München, Germany

01/2008 — 12/2012: **Research associate – Minerva Fellow of the Max-Planck Society**

Max-Planck-Institut für extraterrestrische Physik
Postfach 1312, 85741 Garching b. München, Germany

03/2004 — 12/2008: **Research associate**

Max-Planck-Institut für extraterrestrische Physik
Postfach 1312, 85741 Garching b. München, Germany

12/2000 — 03/2004: **Postdoctoral position**

Leiden Observatory
PO Box 9513, 2300 RA Leiden, The Netherlands

11/1998 — 11/2000: **Postdoctoral position**

CEA/DSM/DAPNIA/Service d'Astrophysique
Centre d'Etudes de Saclay, 91191 Gif-sur-Yvette, France

RESEARCH INTERESTS

- Formation and evolution of galaxies
- Kinematics, morphologies, stellar populations, interstellar medium, star formation and AGN activity, feedback processes
- Stellar populations, dynamical, and photoionization modeling
- Multiwavelength observations, with focus on the optical/infrared/millimeter regimes; imaging, spectroscopy, integral field spectroscopy, interferometry
- AGN and Galactic Center science with the near-infrared interferometer GRAVITY at the Very Large Telescope
- Science cases for future instrumentation at near-infrared/optical wavelengths

HONORS, AWARDS, SELECTED GRANTS

- 04/2022: **ERC Advanced Grant (Call 2021)** PI, Project GALPHYS, 5-year funding period (1,945,250 EUR)
- 07/2019: **Honorary Doctor of Science (Hon DSc)** conferred by the University of Bath, United Kingdom
- 01/2008 — 12/2012: **Minerva Fellow**; 5-year research appointment in the framework of the Minerva Programme of the Max-Planck-Gesellschaft
- 03/2004 — 08/2005: **Balzan Fellow**
- 05/1999: **Dr. rer. nat.** received with honors — **magna cum laude**
- 11/1998 — 11/2000: **NSERC postdoctoral fellowship**, Natural Sciences and Engineering Research Council of Canada, Ottawa, Canada (award declined).
- 01/1995 — 01/1998: **FCAR post-graduate scholarship** (Doctorate), Fonds pour la formation de Chercheurs et l'Aide à la Recherche, Gouvernement du Québec, Québec, Canada.
- 01/1995 — 01/1998: **NSERC post-graduate scholarship** (Doctorate), Natural Sciences and Engineering Research Council of Canada, Ottawa, Canada (award declined).
- 03/1995: **M.Sc.** received with honors — **“Mention d'excellence de l'Université de Montréal”**
- 05/1992 — 05/1994: **NSERC post-graduate scholarship** (Master's), Natural Sciences and Engineering Research Council of Canada, Ottawa, Canada
- 05/1992 — 05/1994: **FCAR post-graduate scholarship** (Master's), Fonds pour la formation de Chercheurs et l'Aide à la Recherche, Gouvernement du Québec, Québec, Canada (award declined).
- 06/1992: **Graduation** with honors — **“Mention d'excellence de l'Université de Montréal”**

PUBLICATIONS SUMMARY

Full list on [ADS Database](#)**Refereed Publications** (ADS, 27.07.2024):

- 255 published/in press articles, 16 as first-author
- 37288 refereed citations to published papers
- h index = 104, m index = 3.7
- 18 articles with ≥ 500 , 59 with ≥ 200 , 111 with ≥ 100 citations
- Most highly cited 1st-author article has 977 citations (Förster Schreiber et al. 2009, ApJ, 706, 1364)
- Publications in top 1% by citations, Space Sciences, Clarivate Analytics (2017-2021; Schreiber, Foerster N.M.).

Review Article:

- Förster Schreiber, N.M. & Wuyts, S., 2020, “*Star-forming galaxies at cosmic noon,*” ARA&A, 58, 661 (146 citations)

Selected Publications

- Förster Schreiber, N. M., Genzel, R., Bouché, N., et al. 2009, “*The SINS survey: SINFONI integral field spectroscopy of $z \sim 2$ star-forming galaxies,*” ApJ, 706, 1364 (977 citations)
- Wisnioski, E., Förster Schreiber, N. M., Wuyts, S., et al. 2015, “*The KMOS^{3D} Survey: design, first results, and the evolution of galaxy kinematics from $0.7 < z < 2.7,$ ” ApJ, 799, 209 (465 citations)*
- Wuyts, S., Förster Schreiber, N. M., van der Wel, A., et al. 2011, “*Galaxy structure and mode of star formation in the SFR-mass plane from $z \sim 2.5$ to $z \sim 0.1,$ ” ApJ, 742, 96 (631 citations)*
- Förster Schreiber, N. M., Übler, H., Davies, R. L., et al. 2019, “*The KMOS^{3D} survey: demographics and properties of galactic outflows at $z=0.6-2.7,$ ” ApJ, 875, 21 (162 citations)*
- Förster Schreiber, N. M., Genzel, R., Lutz, D., & Sternberg, A. 2003, “*The nature of starburst activity in M82,*” ApJ, 599, 193 (145 citations)

PRESENTATIONS AND CONFERENCES SUMMARY

Organization:

- Chair/co-chair of Scientific Organizing Committees: 7 international conferences and workshops
- Member of Scientific Organizing Committees: 27 international conferences and workshops, 1 regional workshop

Presentations:

- 38 invited Colloquia, Seminars, and Lectures
- 70 invited review, plenary, and oral presentations at international conferences
- 38 contributed oral and poster presentations at international and national conferences

OBSERVING PROGRAMS SUMMARY

(all approved programs)

- Facilities: ESO VLT, NTT – HST – JWST — IRAM PdBI/NOEMA, 30m – ALMA 12m-array — Herschel – Spitzer — WHT – Keck-1 & 2 – LBT – Subaru – Calar Alto 3.5m – IRTF – Obs. Mont Mégantic — Arecibo – VLA
- 237 observing programs from ground and space — 39 as PI, 2 as co-PI
- Equivalent of 16081 hours (or 1787 nights) — 2340 hours (260 nights) as PI/co-PI
- 184 programs in Open Time (11523 hours = 1280 nights) — 19 PI programs
- 53 programs in Guaranteed Time (4558 hours = 506 nights) — 20 PI programs
- 4 HST & 2 JWST Treasury Programs, 4 ESO Large Programs, 3 IRAM & 1 ALMA Large/Legacy programs, 2 Herschel >100h programs
- >65 nights on-site observing for instrument commissioning and visitor runs (Very Large Telescope, William-Herschel Telescope, Calar Alto, Kitt Peak National Observatory, Observatoire Mont Mégantic)

PROFESSIONAL SERVICE

Institutional

- Appointment committee for a new Max-Planck-Society scientific member and director at the Max-Planck-Institut für Astronomie, representative of the Scientific Staff (2023)
- Elected Scientific Staff Representative at the Chemistry-Physics-Technology Division of the Max-Planck-Society, Max-Planck-Institut für extraterrestrische Physik (2 terms: 2018–2021, 2021–2024)
- Munich Joint Astronomy Colloquium organizing committee (06/2012 – 06/2017)
- Deputy Equal Opportunities Officer, Max-Planck-Institut für extraterrestrische Physik (10/2014 – 11/2016)
- Recruitment committees for postdoctoral researchers and students (PhD and MSc level) Max-Planck-Institut für extraterrestrische Physik (since 2006)

Professional Journals

- **Board of Reviewing Editors, Science** (since 11/2022)
- Referee for:
 - Astrophysical Journal, Astronomical Journal
 - Monthly Notices of the Royal Astronomical Society, Astronomy & Astrophysics, Nature
 - Publications of the Astronomical Society of Australia

Research Supervision and Mentorship

- Primary and co-advisor of 8 doctorate level students, International Max Planck Research School on Astrophysics (IMPRS) / Max-Planck-Institut für extraterrestrische Physik
- Primary and co-advisor of 22 postdoctoral researchers, Max-Planck-Institut für extraterrestrische Physik
- Co-supervision and mentorship of 18 more doctorate level students
Leiden Univ. (5); Univ. of Bath (2); UC Berkeley (2); ETH Zürich (2); Yale Univ. (1); ESO Garching (1); Tel Aviv Univ. (1); Univ. de Concepción (1); Padova Observatory (1); Univ. of Maryland (1); MPI f. extraterrestrische Physik (1)
- Mentorship of 5 more postdoctoral researchers at MPI für extraterrestrische Physik
- Supervision of student internships hosted at MPI für extraterrestrische Physik: MSc level (1)

Thesis Committees

- Examiner, PhD Thesis of Esteban Jiménez Henríquez (02/2024)
International Centre for Radio Astronomy Research, University of Western Australia
- Advisory committee member, MSc Thesis of Sebastian Arriagada Neira (2023-2024)
Departamento de Astronomía, Universidad de Concepción
- Rapporteur, PhD Thesis and Defense of Wilfried Mercier (11/2022)
Sciences de l'Univers, de l'Environnement et de l'Espace, Université Toulouse III Paul Sabatier
- External examiner, PhD Thesis of Anishya Harshan (05/2022)
School of Physics, Astrophysics Group, University of New South Wales, Sydney
- External examiner, PhD Thesis and Defense of Lamiya Mowla (08/2020)
Department of Astronomy, Yale University
- External examiner, PhD Thesis and Oral Examination of Steven Gillman (05/2020)
Center for Extragalactic Astronomy, Durham University
- External examiner, PhD Thesis and Defense of Carlos Gómez Guíjarro (05/2019)
Cosmic Dawn Center (DAWN), Niels Bohr Institute, University of Copenhagen
- Advisory committee member, PhD Thesis of Chiara Circosta (2017 - 2020)
European Southern Observatory and Ludwig-Maximilian-Universität München
- External Examiner, PhD Thesis and Oral Examination of Fergus Cullen (06/2015)
College of Science and Engineering, University of Edinburgh
- Examiner, PhD Thesis Defense of Julien Queyrel (11/2010)
Sciences de l'Univers, de l'Environnement et de l'Espace, Université Toulouse III Paul Sabatier
- Committee member, PhD Promotion of Pedro Maria Lopes Beirão (01/2010)
Faculteit der Wiskunde end Natuurwetenschappen, Leiden Universiteit
- Committee member, PhD Promotion of Lottie van Starckenburg (12/2008)
Faculteit der Wiskunde end Natuurwetenschappen, Leiden Universiteit

REVIEWS AND CONSULTATION

(confidential commitments omitted)

Advisory Committees

- **ESO Scientific Technical Committee** (since 01/2024)
Advisory committee to Council and the Director General of the European Southern Observatory
- **ELT Project Science Team** (since 2015)
Advisory Working Group supporting the development of the European Extremely Large Telescope Programme

Strategy Committees

- **Decadal Survey on Astronomy and Astrophysics 2020:** *Optical and Infrared Observations from the Ground* panelist, US National Academies of Sciences, Engineering, & Medicine
- **Denkschrift 2017-2030**, Position Document of the Council of German Observatories (Rat deutscher Sternwarten)
 - 2016, original version: co-author of Strategy paper *Galaxy kinematics and evolution*
 - 2023-2024, update: co-coordinator of Chapter on *Galaxies and AGN*

Observing Time Allocation

- **JWST** — James Webb Space Telescope (Cycle 1)
- **IRAM** — Institut de Radioastronomie Millimétrique (since 2018; extragalactic panel chair since 2023)
- **HST** — Hubble Space Telescope (panelist Cycles 19, 20, 22, 23, 24; external reviewer Cycle 32)
- **ESO** — European Southern Observatory (Periods 84, 85)
- **Gemini** — Canadian TAC (semesters 2009A, 2010A, 2010B)

Projects

- **MaNGA** — Pre-Survey Design Review, SDSS-IV, committee member, 2014
- **GMT** — Conceptual Design Review for GMTIFS, committee member, 2011

Funding Agencies

- **DFG** — Deutsche Forschungsgemeinschaft / German Research Foundation
 - **Review Board Member**, Astrophysics & Astronomy (Fachkollegium 3.25, 2024–2028)
 - external reviewer (2012, 2020)
- **SFI-IRC** — Science Foundation Ireland & Irish Research Council
Pathway Programme, Stage 2 Review panelist (2021)
- **AKA** — Academy of Finland, Research Council for Natural Sciences and Engineering
Astronomy Programs, panelist (2020 & 2021 Calls)
- **ERC** — European Research Council, European Commission
Consolidator Grants Program, external reviewer (2014)
- **NWO** — Nederlandse Organisatie voor Wetenschappelijk Onderzoek
VENI & VIDI Grants external reviewer (2004, 2014, 2015)
Physical Sciences Free Competition Grants external reviewer (2008, 2009, 2010)
- **NSERC** — Natural Sciences and Engineering Research Council of Canada
Discovery Grants, external reviewer (2012)
- **ANR** — Agence Nationale de la Recherche, France
Project Blanc Calls, external reviewer (2007, 2011)

SCIENTIFIC COLLABORATIONS

(selected, since 2000)

- GALPHYS: PI** — 88-night GTO survey of very deep observations of resolved kinematics and emission line properties of ~50 high-redshift galaxies with the VLT/ERIS AO-assisted IFU (observations 2023-2028)
- CRISTAL: Co-PI** (PI R. Herrera-Camus; other co-PIs M. Aravena, I. de Looze, J. González López, J. Spilker, K. Tadaki) — ALMA Large Program, a high-resolution survey of gas, dust, and stars in $z \sim 4-5$ galaxies (138.7h, Cycle 8/2021-2022)
- KMOS^{3D}: PI** (co-PI D. Wilman) — 75-night MPE GTO survey of kinematics, star formation, stellar populations, and physical conditions of 750 high-redshift galaxies with the VLT/KMOS multi-IFU (observations 2013-2018)
- SINS: PI** — Spectroscopic Imaging survey of high-redshift galaxies in the Near-IR with the VLT/SINFONI AO-assisted IFU (~60n, MPE GTO + Open Time observations 2005-2016)
- zC-SINF: Co-PI** (PI A. Renzini) — ESO Large Program for AO-assisted VLT/SINFONI IFU observations of 30 $z \sim 2$ star-forming galaxies (300h, observations 2011-2016)
- MIOP/NOEMA^{3D}: Core team member** — Survey of spatially-resolved cold gas kinematics and distribution of high-redshift galaxies with NOEMA mm interferometry, part of the Max-Planck-Gesellschaft and IRAM Observatory GTO Legacy Program (PIs: R. Genzel/R. Neri/L.J. Tacconi; 1600h GTO + Open Time observations 2019-2024)
- UNCOVER: Co-I & Advisory Committee** — Based on JWST NIRCам+NIRSpec ultradeep imaging & spectroscopy of the Hubble Frontier Field Abell 2744 (PIs I. Labbé/R. Bezanson, JWST GO Treasury Program #2561, 71.0 h, Cycle 1)
- AURORA: team member** — Based on JWST NIRSpec ultradeep spectroscopy in the COSMOS and GOODS-N fields (PIs I. A.E. Shapley/R. Sanders, JWST GO Program #1914, 63.9 h, Cycle 1)
- SUSPENSE: team member** — Based on JWST NIRSpec ultradeep spectroscopy of $1 < z < 2.5$ quiescent galaxies (PIs I. M. Kriek/A. Beverage, JWST GO Program #2110, 22.9 h, Cycle 1)
- 3D-DASH: team member** — Based on the HST Wide Field WFC3/IR Survey of COSMOS, a large-area grism extragalactic survey (PI I. Momcheva, HST Treasury Program #16259, 259 orbits, Cycle 28)
- PHIBSS/PHIBBS2: Co-I** — IRAM/Plateau de Bure Interferometer Large and Legacy Programs for mapping CO emission in high-redshift galaxies (PIs PHIBBS: L.J. Tacconi/R. Genzel/F. Combes; 2009-2011; PHIBBS2: F. Combes/S. Garcia-Burillo/R. Neri/L.J. Tacconi; 2013-2017; 1400 h)
- VIRIAL: Co-I** — MPE GTO survey of stellar populations and kinematics with absorption lines of 130 high-redshift quiescent galaxies with the VLT/KMOS multi-IFU (PIs: J.T. Mendel/R.P. Saglia; 15 n, observations 2013-2018)
- 3D-HST: team member** — Based on the HST Spectroscopic Galaxy Evolution Program, a grism survey with WFC3/IR in five extragalactic legacy fields (PI P. van Dokkum, HST Treasury Program #12177, 248 orbits, Cycle 18)

- FIRES:** core team member — Based on ESO Large Program *Faint Infrared Extragalactic Survey*, a deep near-IR imaging survey with VLT/ISAAC (PI M. Franx; ESO LP 164.O-0612, 320 h, observations 1999-2001)
- GRAVITY:** collaboration member — science with GRAVITY, 2nd-generation instrument for narrow-angle astrometry and interferometric imaging for the ESO VLT Interferometer (PI: F. Eisenhauer, MPE)
- PEP:** team member — Based on Guaranteed Time Key Program PACS Evolutionary Probe survey of the far-infrared extragalactic sky with Herschel (PI. D. Lutz; 655h GTO observations 2009-2011)
- GOODS-Herschel:** co-I — GOODS-Herschel Open Time Key Programme, an ultra-deep far-infrared survey of the GOODS Fields with Herschel (PI D. Elbaz; 360h, observations 2010)

INSTRUMENT TEAMS

(since 2004)

- ELT/MICADO:** Consortium member, **lead of Galaxy Evolution Working Group** — *MICADO: high angular resolution camera and spectrometer*, first-light instrument at the European Extremely Large Telescope; (PI R. Davies, MPE)
- VLT/ERIS:** Project Science Team — *ERIS: Enhanced Resolution Imager and Spectrograph*, the new high-resolution near/mid-IR adaptive optics-assisted camera and integral field spectrograph at the ESO Very Large Telescope (PI R. Davies, MPE)
- VLT/KMOS:** Project Scientist — *KMOS: near-IR Multi-Object integral field Spectrograph*, 2nd-generation instrument at the ESO Very Large Telescope (PIs R. Sharples, Durham/R. Bender, MPE)
- LBT/LUCI:** MPE Science Working Group — *LUCI: twin near-IR multi-object spectrometer and imager* at the Large Binocular Telescope (Landessternwarte Heidelberg (lead), MPE, MPIA, Astronomisches Institut der Uni. Bochum)
- LBT/ARGOS:** MPE Science Working Group — *Advanced Rayleigh guided Ground layer adaptive Optics System*, the laser guide stars and wavefront sensing facility at the Large Binocular Telescope (PI S. Rabien, MPE)