

Reinier Janssen

Personal Details

Name	Reinier Maarten Johannes Janssen
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Education

2011 - 2017	Ph.D. Research, Delft, University of Technology Subject: Multiwavelength observations of Active Galactic Nuclei: Using current facilities and development of enabling technologies. Promotors: prof.dr.ir. TM Klapwijk, prof. dr. HJA Röttgering, dr.ir. J.J.A. Baselmans
2008 - 2011	MSc Astronomy, Leiden University Graduation Subject: Host Galaxies of Radio-loud Active Galactic Nuclei
2006 - 2011	MSc Applied Physics (cum laude), Delft, University of Technology Graduation Subject: Submicron Kinetic Inductance Detectors for SAFARI

Employment

2019 - now	NASA Postdoctoral Fellow <i>NASA Jet Propulsion Lab, Pasadena, United States</i> Development of Kinetic Inductance detectors for THz spectrometry with astronomical applications
2017 - 2018	Postdoctoral researcher <i>Institut d'Astrophysique Spatiale, Université Paris Sud (Paris XI), Paris, France</i> Research subjects: <ul style="list-style-type: none">• Interaction between high-energy particles and cryogenic detectors for next-generation astronomical space mission• Nature of jet-mode active galactic nuclei in actively star-forming galaxies
2011 - 2017	Ph.D. Research, <i>Kavli Institute of NanoScience, Faculty of Applied Sciences, Delft University of Technology, The Netherlands</i> Research subjects: <ul style="list-style-type: none">• Development of hybrid NbTiN-Al Kinetic Inductance Detectors for astronomical applications• Properties of radio-loud active galactic nuclei in the local universe
2007 - 2009	Suspension Engineer <i>DUTracing, Delft, The Netherlands</i> In parallel with my double master's degree I have participated in this student project to build a formula style racecar and compete in prestigious international competitions in Germany and the UK.

Honors and Awards

- NASA Postdoctoral Program Fellowship, Universities Space Research Association (2018)
- Best Poster Award – JPL Postdoc Research Day (2021)

Teaching Experience

- Guest lecture on “AGN and the Cosmological Distance ladder” at Pasadena City College as part of the CalTech-PCC Connection program (2019).
- Teaching assistant for the course “Introduction to Astronomy” during which I assisted in the complete redevelopment of the course. In addition, a TUD Grassroots proposal was successfully completed during the second year of the course. (2013, 2014)
- Supervisor of the final project for first year students (2013, 2014).
- Supervised 1 BSc student (2014) and 4 JPL summer students (2020)
- Advisor for students of the Astronomy Minor program (6 students)
- (Co-)supervisor of 4 graduate students

Public Outreach

- Outreach lecture “The Hidden Universe in 3D” for Astronomy on Tap series (Spring 2020)
- Co-organizer and volunteer for the Stargazing and Lecture series of the CalTech Astronomy Outreach program (Fall 2019)
- Outreach lecture “Seeing the Unseen” during CalTech Science for March (March 2019)
- Six invited lectures on the subjects “light” and “stars” at the Delftse Natuurwacht for children age 8-16. (2014-2017)
- Invited lecture titled “Shining a light on the dark part of the universe” for ~20 international high-school students of the International School of The Hague as part of the Challenger Program (April 2014)
- Invited article “Rood licht leidt naar oerknal” for the “Vraag het TU Delft” series of the Telegraaf (August 2013)
- Invited article on “Actieve Galactische Kernen: Monsters in het Universum” for De Physicus (January 2015)

Awarded proposals for telescope observations

- “Unraveling the nature of jet-mode AGN in galaxies with active star formation” for a total of 198 hours of observation time on the IRAM 30m telescope (2018,2019)
- “Unraveling the nature of jet-mode AGN in galaxies with active star formation” for a total of 5.5 hours of observation time on the Very Large Telescope (2019)
- “Exploring the limits of AGN feedback in low-power radio galaxies” for a total of 9 nights of observation time on the Isaac Newton Telescope (2019)
- “The ultimate test of a classic paradigm in astronomy: only massive ellipticals host powerful radio sources” For a total of 6 nights of observation time on the William Herschel Telescope (2013, 2014)

List of Publications

Refereed Journal Articles

RMJ Janssen, R Nie, B Bumble, L-J Liu, J Redford, JP Filippini, CM Bradford, S Hailey-Dunsheath, JE Aguirre, JS Bracks, AJ Corso, J Fu, CE Groppi, J Hoh, RP Keenan, IN Lowe, DP Marrone, PD Mauskopf, I Trumper, JD Vieira, *Single pixel performance of the kinetic inductance detectors for the Terahertz Intensity Mapper*, Journal of Low Temperature Physics, submitted (2021)

L-J Liu, **RMJ Janssen**, CM Bradford, S Hailey-Dunsheath, J Fu, JP Filippini, JE Aguirre, JS Bracks, AJ Corso, C Groppi, J Hoh, RP Keenan, IN Lowe, DP Marrone, P Mauskopf, J Redford, I Trumper, JD Vieira, *Design of the kinetic inductance detector based focal plane assembly for the Terahertz Intensity Mapper*, Journal of Low Temperature Physics, submitted (2021)

R Nie, **RMJ Janssen**, CM Bradford, JP Filippini, S Hailey-Dunsheath, CM McKenney, JE Aguirre, JS Bracks, AJ Corso, J Fu, C Groppi, J Hoh, RP Keenan, L-J Liu, IN Lowe, DP Marrone, P Mauskopf, J Redford, I Trumper, JD Vieira, *Absorber design and optimization of Kinetic Inductance Detectors for the Terahertz Intensity Mapper*, Journal of Low Temperature Physics, submitted (2021)

J Redford, PS Barry, CM Bradford, S Chapman, J Glenn, S Hailey-Dunsheath, **RMJ Janssen**, KS Karkare, HG LeDuc, PD Mauskopf, R McGeehan, E Shirokoff, J Wheeler, J Zmuidzinas, *SuperSpec: On-chip spectrometer design, characterization, and performance*, Journal of Low Temperature Physics, submitted (2021)

M Meenakshi, D Mukherjee, AY Wagner, NPH Nesvadba, R Morganti, **RMJ Janssen**, GV Bicknell, RS Sutherland, A Mandal, *Modelling observable signatures of jet-ISM interaction: thermal emission and gas kinematics*, Monthly Notices of the Royal Astronomical Society, Monthly Notices of the Royal Astronomical Society **511**, 1622 (2022)

M Meenakshi, D Mukherjee, AY Wagner, NPH Nesvadba, R Morganti, **RMJ Janssen**, GV Bicknell, *The extent of ionization in simulations of radio-loud AGNs impacting kpc gas discs*, Monthly Notices of the Royal Astronomical Society, Monthly Notices of the Royal Astronomical Society **511**, 1622 (2022)

NPH Nesvadba, AY Wagner, D Mukherjee, A Mandal, **RMJ Janssen**, H Zovaro, N Neumayer, G Bicknell, *Jet-driven AGN feedback on molecular gas and low star-formation efficiency in a massive local spiral galaxy with bright X-ray halo*, Astronomy & Astrophysics **654**, A8 (2021)

S Hailey-Dunsheath, **RMJ Janssen**, J Glenn, CM Bradford, J Perido, J Redford, J Zmuidzinas, *Kinetic inductance detectors for the Origins Space Telescope*, Journal of Astronomical Telescopes, Instruments, and Systems **7**, 011015 (2021)

R Nie, **RMJ Janssen**, CM Bradford, JP Filippini, S Hailey-Dunsheath, *Optimization of a quasi-mesh absorber for the Terahertz Intensity Mapper*, IEEE Transactions on Terahertz Science and Technology **10**, 704 (2020)

SL Stever, P Peille, MP Bruijn, A Roussafi, S Lotti, C Macculi, **RMJ Janssen**, R den Hartog, *Thermal simulations of temperature excursions on the ATHENA X-IFU detector wafer from impacts by cosmic rays*, Journal of Low Temperature Physics **199**, 264 (2020)

KS Karkara, PS Barry, CM Bradford, S Chapman, S Doyle, J Glenn, S Gordon, S. Hailey-Dunsheath, **RMJ Janssen**, A Kovacs, HG LeDuc, P Mauskopf, R McGeehan, J Redford, E Shirokoff, C Tucker, J Wheeler, J Zmuidzinas, *Full-array noise performance of deployment-grade SuperSpec mm-wave on-chip spectrometers*, Journal of Low Temperature Physics **199**, 849 (2020)

JJA Baselmans, J Bueno, SJC Yates, O Yurduseven, N Llombart, K Karatsu, AM Baryshev, L Ferrari, A Endo, DJ Thoen, PJ de Visser, **RMJ Janssen**, V Murugesan, EFC Driessen, G Coiffard, J Martin-Pintado, P Hargrave, M Griffin, *A kilo-pixel imaging system for future space based far-infrared observatories*, Astronomy & Astrophysics **601**, A89 (2017)

RMJ Janssen, A Endo, PJ de Visser, TM Klapwijk, JJA Baselmans, *Equivalence of Optical and Electrical Noise Equivalent Power of Hybrid NbTiN-Al Microwave Kinetic Inductance Detectors*, Applied Physics Letters **105**, 193504 (2014)

RMJ Janssen, JJA Baselmans, A Endo, L Ferrari, SJC Yates, AM Baryshev, and TM Klapwijk, *High optical efficiency and photon noise limited sensitivity of microwave kinetic inductance detectors using phase readout*, Applied Physics Letters **103**, 203503 (2013)

RMJ Janssen, HJA Röttgering, PN Best, J Brinchmann, *The triggering probability of radio-loud AGN: A comparison of high and low excitation radio galaxies in hosts of different colors*, Astronomy & Astrophysics **541**, A62 (2012)

RMJ Janssen, A Endo, JJA Baselmans, PJ de Visser, R Barends, TM Klapwijk, *Power Handling and Responsivity of Submicron Wide Superconducting Coplanar Waveguide Resonators*, Journal of Low Temperature Physics **167**, 354-359 (2012)

A Endo, PP van der Werf, **RMJ Janssen**, PJ de Visser, TM Klapwijk, JJA Baselmans, L Ferrari, AM Baryshev, SJC Yates, *Design of an Integrated Filterbank for DESHIMA: On-Chip Submillimeter Imaging Spectrograph Based on Superconducting Resonators*, Journal of Low Temperature Physics **167**, 341-346 (2012)

SJC Yates, JJA Baselmans, A Endo, **RMJ Janssen**, L Ferrari, P Diener, AM Baryshev, *Photon noise limited radiation detection with lens-antenna coupled microwave kinetic inductance detectors*, Applied Physics Letters **99**, 073505 (2011)

Refereed Conference Proceedings

RMJ Janssen, SL Stever, V Sauvage, G Rouille, N Coron, M Bouzit and B. Maffei, *Commissioning of a common-user test facility to evaluate the effects of high-energy particles on next-generation cryogenic detectors*, High Energy, Optical and Infrared Detectors for Astronomy VIII, Proceedings of the SPIE **10709**, 107091V (2018)

S.L. Stever, F. Couchot, N. Coron, **RMJ Janssen** and B. Maffei, *A new pulse shape description for alpha-particle pulses in a highly-sensitive sub-Kelvin bolometer*, Space Telescopes and Instrumentation 2018: Optical, Infrared, and Millimeter Wave, Proceedings of the SPIE **10698**, 1069863 (2018)

RMJ Janssen, JJA Baselmans, A Endo, L Ferrari, SJC Yates, AM Baryshev, and TM Klapwijk, *Performance of Hybrid NbTiN-Al Microwave Kinetic Inductance Detectors as Direct Detectors for Sub-millimeter Astronomy*, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, Proceedings of the SPIE **9153**, 91530T (2014)

A Endo, JJA Baselmans, PP van der Werf, B Knoors, SMH Javadzadeh, SJC Yates, DJ Thoen, L Ferrari, AM Baryshev, YJY Lankwarden, PJ de Visser, **RMJ Janssen**, TM Klapwijk, *Development of DESHIMA: a redshift machine based on a superconducting on-chip filterbank*, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VI. Proceedings of the SPIE **8452**, 84520X (2012)

Other publications

R Nie, **RMJ Janssen**, CM Bradford, JP Filippini, S Hailey-Dunsheath, *Absorber Optimization Study for the Terahertz Intensity Mapper (TIM)*, IEEE, 31st International Symposium on Space Terahertz Technology (2020)

RMJ Janssen, *Multiwavelength observations of active galactic nuclei: using current facilities and development of enabling technologies*, PhD Thesis (2017), ISBN: 978-90-8593-285-7

A.M. Baryshev, J.J.A. Baselmans, S.J.C. Yates, L. Ferrari, L. Bisigello, **R.M.J. Janssen**, A. Endo, T.M. Klapwijk, B. Klein, S. Heymick, R. Gusten, *Large format antenna coupled microwave kinetic inductance detector arrays for radioastronomy*, IEEE, 39th conference proceedings on infrared, millimeter and terahertz waves (2014)

Y. Abbas, M. Hilhorst, **R.M.J. Janssen**, W. Stenfert Kroese, S. Kumar, M. Lensvelt, D. Miedema, W. Olthuis, E.J. Schioppa, R. Sprik, M. Vahabi, J. Wu, *Aequo: moisture sensor analysis*, Proceedings Physics with Industry 2014 (2014)

References

Prof dr.ir. J.J.A. Baselmans (SRON, Netherlands Institute for Space Research & Delft, University of Technology)

Prof. dr.ir. Baselmans was my co-promotor and direct supervisor during my PhD for my research on KIDS

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Dr. C.M. Bradford (NASA Jet Propulsion Laboratory)

Dr. Bradford is my current NPP supervisor at NASA JPL.

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Prof.dr. B.R. Brandl (Leiden University & Delft, University of Technology)

Together with prof.dr. Brandl I have taught the TU Delft's "Introduction to Astronomy" course for undergraduates.

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Dr. N.P.H. Nesvadba (Observatoire de la Côte d'Azur)

Together with dr. Nesvadba I have set up a large multiwavelength observation program of local active galaxies

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