Pieter van Dokkum

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Education

Ph. D. **University of Groningen**, Astronomy (cum laude) 1999

- Thesis: "Formation and evolution of early-type galaxies" (PDF version)
- Advisors: M. Franx, G. D. Illingworth

M. Sc. **University of Groningen**, Astronomy 1994

Positions

Co-founder and CEO, Dragonfly Focused Research Organization, LLC 2025 –

- First FRO in Astronomy or Physics
- Construction and operation of a large distributed-aperture telescope at El Sauce, Chile, to observe the baryonic cosmic web

Divisional Director, Physical Sciences and Engineering, Yale University 2017 – 2022

- Chair of Tenure and Appointments Committee
- Chair of Physical Sciences and Engineering Advisory Committee

Sol Goldman Family Professor, Astronomy Department and Physics Department, Yale University 2012 –

Department Chair, Astronomy Department, Yale University 2011 – 2016

Professor, Astronomy Department and Physics Department, Yale University 2007 – 2012

Associate Professor, Astronomy Department, Yale University 2006

Assistant Professor, Astronomy Department, Yale University 2003 – 2005

Spitzer Fellow, California Institute of Technology 2002

- Awarded by the Space Telescope Science Institute, Baltimore

Hubble Fellow, California Institute of Technology 1999 – 2002

- Awarded by the Space Telescope Science Institute, Baltimore

Honors and Awards

Lyman Spitzer, Jr. Lecturer 2025

- Distinguished lecture series hosted by the Department of Astrophysical Sciences, Princeton University

Jackson-Gwilt Medal, Royal Astronomical Society 2023

- Awarded for outstanding invention, improvement, or development of astronomical or geophysical instrumentation or techniques
- Citation: "The Dragonfly system and its impressive scientific productivity and significance represent an exceptionally creative and novel achievement in experimental astrophysics"

Graduate Mentor Award in the Natural Sciences, Yale University 2020

- One award annually in the Natural Sciences (Biology, Physical Sciences, and Engineering)

Maria and Eric Muhlmann Award, Astronomical Society of the Pacific 2018

- Awarded for significant observational results made possible by innovative advances in astronomical instrumentation, software, or observational infrastructure

Biard Visiting Lectureship 2017

- Distinguished lecture hosted by the Division of Physics, Mathematics, and Astronomy at the California Institute of Technology

Eddington Lectureship 2015

- Distinguished lecture hosted by the University of Cambridge and the Royal Astronomical Society

Sol Goldman Family Professor 2012

- Named Chair; inaugural

Marc Aaronson Memorial Prize 2012

- Awarded by the University of Arizona Department of Astronomy and Steward Observatory to promote and recognize excellence in astronomical research
- Citation: "For his studies of the evolution of the most massive galaxies over cosmic time"

CAREER Award, National Science Foundation 2005

- Program: "The Formation Epoch of Massive Galaxies"

Pastoor Schmeits Prize, Royal Netherlands Astronomical Society 2004

Grants

With the exception of the Canada Foundation for Innovation grant in 2020, listed dollar amounts for collaborative projects reflect only the portion of the grant that was allocated to van Dokkum.

$ 1,761,461 **Dragonfly Focused Research Organization**, PI 2025 – 2032

- Grant from Dragonfly FRO to Yale University for conducting scientific research with the Mothra telescope array

$ –,—,— **[Undisclosed]** 2025 – 2032

- Tens-of-millions private donation
- Administered by the Dragonfly Focused Research Organization, LLC
- Construction and operation of Mothra, a 1140-lens segmented-aperture telescope in Chile
- Source of funds and exact funded amount are not publicly disclosed

$ 40,000 **Space Telescope Science Institute**, HST-GO-17598, PI 2025 – 2028

- "The globular clusters of Dragonfly 44"

$ 142,253 **Space Telescope Science Institute**, JWST-GO-05629, co-I 2025 – 2027

- "Extremely deep spectroscopy of quiescent galaxies at z$\sim$0.7: A direct measurement of the stellar initial mass function beyond the low-redshift universe"

$ 137,695 **Space Telescope Science Institute**, JWST-GO-04757, PI 2025 – 2027

- "Using water to test for variation in the stellar initial mass function"

$ 40,000 **Space Telescope Science Institute**, HST-GO-17599, PI 2024 – 2027

- "The optical emission of the highest redshift lens system"

$ 43,466 **Space Telescope Science Institute**, HST-GO-17508, PI 2024 – 2027

- "HST imaging of a newly discovered many-ringed galaxy"

$ 52,410 **Space Telescope Science Institute**, HST-GO-17454, PI 2024 – 2027

- "A candidate nearly-dark galaxy with 4 globular clusters"

$ 132,491 **Space Telescope Science Institute**, JWST-GO-03149, PI 2024 – 2026

- "A possible runaway supermassive black hole at the tip of a 62 kpc long linear feature"

$ 147,144 **Space Telescope Science Institute**, HST-GO-17301, PI 2023 – 2026

- "Ultraviolet imaging of a candidate runaway supermassive black hole"

$ 120,253 **Space Telescope Science Institute**, HST-GO-16912, PI 2022 – 2025

- "A trail of dark matter-free galaxies in the NGC1052 group"

$ 166,206 **Space Telescope Science Institute**, HST-GO-16678, PI 2022 – 2025

- "Far-UV spectroscopy of 22 early-type galaxies: testing for IMF variation and a legacy dataset"

$ 109,960 **Space Telescope Science Institute**, JWST-GO-02198, co-I 2022 – 2024

- "Quiescent or dusty? Unveiling the nature of extremely red galaxies at $z > 3$"

$ 635,104 **National Science Foundation**, AST-2108341, PI 2021 – 2025

- "Mapping diffuse gas with the prototype Dragonfly filter tilter array"
- Funding for science with the already-built prototype Dragonfly Spectral Line Mapper

$ 72,821 **Space Telescope Science Institute**, HST-GO-16284, PI 2021 – 2024

- "Imaging of an apparent globular cluster galaxy"

$ 1,973,000 **Canada Foundation for Innovation**, co-I 2020 – 2025

- "A Massive Transformation of the Dragonfly Telephoto Array"
- Construction and operation of the Dragonfly Spectral Line Mapper, a 120-lens segmented-aperture telescope in New Mexico
- Listed amount includes Yale matching funds but no University of Toronto funds

$ 359,638 **Space Telescope Science Institute**, HST-GO-16259, PI 2020 – 2025

- "3D-DASH: A Wide Field WFC3/IR Survey of COSMOS"

$ 29,995 **Space Telescope Science Institute**, HST-GO-15977, co-I 2020 – 2023

- "Characterizing the Environment Around The Most Distant Known Galaxy"

$ 63,567 **Space Telescope Science Institute**, HST-GO-15852, PI 2020 – 2023

- "Testing IMF variation in elliptical galaxies using chromospheric activity of M dwarfs"

$ 107,584 **Space Telescope Science Institute**, HST-GO-15852, PI 2020 – 2023

- "Deep imaging and a TRGB distance for the dark matter deficient galaxy NGC1052-DF2"

$ 70,030 **Space Telescope Science Institute**, HST-GO-15850, PI 2019 – 2022

- "An accurate age for the enigmatic galaxy NGC1052-DF2"

$ 76,364 **Space Telescope Science Institute**, HST-GO-15695, PI 2019 – 2022

- "An accurate distance to the controversial low-dark matter galaxy NGC1052-DF4"

$ 90,095 **Space Telescope Science Institute**, HST-AR-15027, co-I 2017 – 2020

- "Completing the Legacy of Hubble's Wide/Deep Fields: An Aligned Complete Dataset of 1220 Orbits on the GOODS-N/CANDELS-N Region"

$ 90,829 **Space Telescope Science Institute**, HST-GO-14643, PI 2017 – 2020

- "Imaging of three Ultra Diffuse Galaxies with measured stellar kinematics"

$ 577,803 **National Science Foundation**, AST-1613582, PI 2016 – 2020

- "The Low Surface Brightness Sky with the 48-Lens Dragonfly Telephoto Array"
- Funding for science with the already-built 48-lens Dragonfly Telephoto Array

$ 49,989 **Space Telescope Science Institute**, HST-GO-14704, co-I 2016 – 2019

- "A Year in the Whirlpool"

$ 136,250 **Space Telescope Science Institute**, HST-GO-14644, PI 2016 – 2019

- "Exploring the extremely low surface brightness sky: distances to 23 newly discovered objects in Dragonfly fields"

$ 49,989 **Space Telescope Science Institute**, HST-AR-14557, co-I 2016 – 2019

- "Measuring the Star Formation History of the Local Universe"

$ 238,706 **Space Telescope Science Institute**, HST-GO-14114, PI 2016 – 2019

- "A Wide-Field WFC3 Imaging Survey in the COSMOS Field"

$ 68,197 **Space Telescope Science Institute**, HST-GO-13872, co-I 2016 – 2017

- "The GOODS UV Legacy Fields: A Full Census of Faint Star-Forming Galaxies at $z \sim$

$0.5 - 2$"

$ 11,851 **Space Telescope Science Institute**, HST-GO-13871, co-I 2016 – 2018

- "A Spectroscopic Redshift for the Most Luminous Galaxy Candidate at $z \sim 10$"

$ 105,765 **Space Telescope Science Institute**, HST-GO-13845, co-I 2015 – 2017

- "Resolved H-α Maps of Star-forming Galaxies in Distant Clusters: Towards a Physical Model of Satellite Galaxy Quenching"

$ 76,409 **Space Telescope Science Institute**, HST-GO-13682, PI 2015 – 2018

- "Distances and stellar populations of seven low surface brightness galaxies in the field of M101"

$ 107,685 **Space Telescope Science Institute**, HST-GO-13681, PI 2015 – 2018

- "Fluctuation spectroscopy with the ACS ramp filters: a new way to measure the IMF in elliptical galaxies"

$ 206,433 **National Science Foundation**, AST-1524161, co-I 2014 – 2016

- "Collaborative Research: Detailed Elemental Abundance Patterns in Early-Type Galaxies"

$ 109,755 **Space Telescope Science Institute**, HST-AR-13252, co-I 2013 – 2016

- "High level science products from deep ACS and WFC3/IR imaging over the CDF-S/GOODS-S region"

$ 29,718 **Space Telescope Science Institute**, HST-GO-12896, co-I 2013 – 2016

- "At the Turn of the Tide: WFC3/IR Imaging and Spectroscopy of Two Galaxy Clusters at $z \sim 2$"

$ 31,436 **Space Telescope Science Institute**, HST-GO-12523, PI 2013 – 2016

- "Dissecting the integrated light of a massive elliptical galaxy with pixel-to-pixel fluctuations: is the IMF bottom-heavy?"

$ 480,291 **National Science Foundation**, AST-1312376, PI 2013 – 2016

- "The Dragonfly Project: Imaging the outer limits of nearby galaxies"
- Funding for science with the already-built 10-lens Dragonfly Telephoto Array

$ 767,492 **Space Telescope Science Institute**, HST-GO-12177, PI 2010 – 2014

- "3D-HST: A Spectroscopic Galaxy Evolution Treasury"
- Hubble Space Telescope Treasury Program

$ 58,965 **Space Telescope Science Institute**, HST-GO-12167, PI 2010 – 2013

- "Resolving the Matter of Massive Quiescent Galaxies at $z = 1.5 - 2$"

$ 484,580 **NASA**, NNH10ZDA001N-ADAP, PI 2010 – 2013

- "A complete census of passive galaxies, star forming galaxies, and obscured AGN at $1 < z < 3$"
- NASA Astrophysics Data Analysis Program (ADAP)

$ 114,728 **Space Telescope Science Institute**, HST-GO-12167, co-I 2009 – 2011

- "Galaxies at $z \sim 7 - 10$ in the Reionization Epoch: Luminosity Functions to $< 0.2L*$ from Deep IR Imaging of the HUDF and HUDF05 Fields"

$ 41,577 **Space Telescope Science Institute**, HST-GO-11144, co-I 2008 – 2009

- "Building on the Significant NICMOS Investment in GOODS: A Bright, Wide-Area Search for $z \geq 7$ Galaxies"

$ 93,830 **Space Telescope Science Institute**, HST-GO-11135, co-I 2008 – 2012

- "Extreme makeovers: Tracing the transformation of massive galaxies at $z \sim 2.5$"

$ 440,819 **National Science Foundation**, AST-0807974, PI 2008 – 2012

- "The NEWFIRM Medium-Band Survey: Accurate Redshifts for 80,000 K-Selected Galaxies"
- Associated with a Key Project of the National Optical Astronomical Observatories

$ 26,761	**Space Telescope Science Institute**, HST-GO-11135, co-I • "NICMOS Imaging of GOODS: Probing the Evolution of the Earliest Massive Galaxies, Galaxies Beyond Reionization, and the High Redshift Obscured Universe"	2007 – 2010
$ 76,608	**Space Telescope Science Institute**, HST-GO-10809, PI • "The nature of dry mergers in the nearby Universe"	2007 – 2009
$ 77,465	**Space Telescope Science Institute**, HST-GO-10808, PI • "Morphologies of spectroscopically-confirmed red and dead galaxies at $z \sim 2.5$"	2007 – 2009
$ 71,453	**Space Telescope Science Institute**, HST-GO-10196, co-I • "Morphologies of a new class of rest-frame optical selected high redshift galaxies"	2005 – 2006
$ 673,697	**National Science Foundation**, AST-0449678, PI • "CAREER: The Formation Epoch of Massive Galaxies"	2005 – 2009
$ 6,027	**Space Telescope Science Institute**, HST-GO-09803, co-I • "Galaxy Populations at Very Large Cluster Radii: The Outskirts of MS1054–03 at $z = 0.83$"	2004 – 2005
$ 15,700	**Space Telescope Science Institute**, HST-AR-09920, co-I • "The mass assembly history of early-type galaxies at $z \sim 1$"	2003 – 2005
$ 78,892	**Space Telescope Science Institute**, HST-GO-09803, co-I • "Deep Near IR Images in the Chandra Deep Field South Ultra Deep Field"	2003 – 2005
$ 52,178	**Space Telescope Science Institute**, HST-GO-09723, co-I • "Deep NICMOS imaging of HDF-South: restframe optical morphologies of high redshift galaxies"	2003 – 2007
$ 84,901	**Space Telescope Science Institute**, HST-AR-09541, PI • "Formation of Elliptical and S0 Galaxies in Clusters"	2003 – 2005

Publications

A total of 815 publications, largely in Astronomy journals

- Link to full publication list, reverse ordered by date
- Link to full publication list, reverse ordered by citation count

Citation metrics:

- Citation count: **71,500**
- H-index: **143**
- Papers in Science, Nature, or Nature Astronomy: **20**
- 2024 Physics Leader Award, based on citation statistics

Intellectual property

US Patent No. 12,189,155 B2 2025

- "Telescopes and imagers including tiltably mounted narrowband interference filters"

Scientific leadership

CEO and co-founder, Dragonfly Focused Research Organization 2025 –

- Non-profit organization that is responsible for constructing and operating the Mothra Telescope, a 1140-lens distributed-aperture telescope in Chile
- Leading organization and team of employees and researchers
- Responsible for ensuring success of the project: imaging the cosmic web within five years

Co-PI, Dragonfly Spectral Line Mapper 2022 – 2024

- Prototype of Mothra telescope, consisting of 120 lenses

- Funded through Canada Foundation for Innovation grant

PI, Hubble Space Telescope Large Program 2015 – 2019

- "A Wide Field WFC3 Survey of the COSMOS Field"
- Developed HST's DASH (Drift And SHift) rapid mapping technique for this program

Co-PI, Dragonfly Telephoto Array 2013 –

- Developed concept of distributed-aperture refracting telescope
- The 48-lens Dragonfly Telephoto Array has operated continuously in New Mexico since 2013

PI, Hubble Space Telescope Treasury Program 2012 – 2018

- "3D-HST: A Spectroscopic Galaxy Evolution Treasury"
- First large-scale survey that uses space-based slitless grism spectroscopy
- The highest-impact HST Treasury program so far, according to STScI's metrics

PI, Spitzer Space Telescope Large Program 2010 – 2012

- "An IRAC Survey of the E-CDF-South"

PI, NOAO Key Project 2008 – 2012

- "The NEWFIRM Medium Band Survey"
- Development and first application of subdivided near-IR filters for galaxy surveys

PI, Gemini Key Science Project 2005 – 2008

- "GNIRS Spectroscopy of Massive Galaxies"

Co-PI, Yale-Chile Joint Project 2004 – 2008

- "Multi-wavelength Survey by Yale-Chile (MUSYC)"

Teaching

Developed and taught two classes in the past five years:

ASTR 355 Observational Astronomy

- High level course on telescopes, spectrographs, detectors, data reduction, and data analysis techniques
- Most recent evaluation: 3.8/5

ASTR 465 The Evolving Universe

- Overview of cosmic history from the formation of the first star to the present day, focusing on direct observations of the high-redshift universe
- Most recent evaluation: 3.7/5

Service

Director of Graduate Studies, Astronomy Department, Yale University 2024 – 2025

Trustee, The Children's Museum Group, West Hartford 2024

Member, Steering Committee, Astro 2020 Decadal Survey, National Academy of Sciences 2019 – 2022

- The Decadal Survey sets out priorities for ground- and space-based Astronomy and Astrophysics, advising NASA, NSF, DOE, and other agencies
- The top level committee within the Decadal Survey, responsible for formulating the final recommendations and writing the report

Member, Instrumentation Strategy Committee, Yale University 2019 – 2021

Divisional Director, Physical Sciences and Engineering, Yale University 2017 – 2022

Chair, Tenure and Appointments Committee, Physical Sciences and Engineering, Yale University 2017 – 2022

Chair, Advisory Committee, Physical Sciences and Engineering, Yale University 2017 – 2022

Member, Keck Science Steering Committee 2017 –

Chair, extragalactic panel, Hubble Space Telescope proposal review	2016
Chair, Astronomy Department, Yale University	2011 – 2016
Chair, Hubble Fellows Selection Committee, Space Telescope Science Institute	2012
Chair, YCAA Fellow Selection Committee, Yale University	2012
Member of the Board, WIYN telescope	2012 – 2014
Director, Research Observatories, Yale University	2009 – 2011
Member, Science Advisory Committee, Thirty Meter Telescope	2009 – 2011
Member, Divisional Committee, Science and Engineering, Yale University	2009 – 2011
Chair, Science Advisory Committee, WIYN Telescope	2007 – 2010
Chair, Science Committee for the distant universe, Spitzer Space Telescope Warm Mission	2007
Member, Steering Committee, Spitzer Space Telescope Warm Mission	2007 – 2008
Member, Course of Study Committee, Yale University	2007 – 2008
Chair, Time Allocation Committee, Gemini Telescope, staff scientists	2006 – 2008
Member, Science Advisory Committe, WIYN Telescope	2005 – 2006
Member, Science Advisory Committe, Gemini Telescope (US)	2000 – 2005