Masato KOBAYASHI, Ph.D.

as of 2024. Nov. 9

I. Physics Institute, University of Cologne
Zülpicher Straße 77
50937, Köln, Germany
E-Mail: kobayashi@ph1.uni-koeln.de
Website: https://minkobayashi.github.io/website/
ORCID: https://orcid.org/0000-0003-3990-1204
Researchmap: https://researchmap.jp/mskobayashi/?lang=english

EDUCATION:

Mar. 2018 **Ph.D.**
Nagoya University (Japan),
Graduate School of Science
Supervisor: Prof. Naoshi Sugiyama
Thesis: "The Evolutionary Description of Molecular Cloud Mass Functions and Star Formation in the Multiphase Interstellar Medium" [Link]

Mar. 2015 **M.Sc.**
Nagoya University (Japan),
Graduate School of Science
Supervisor: Associate Prof. Tsutomu Takeuchi, Associate Prof. Alexie Leauthaud
Thesis: "Galaxy - Dark Matter Connection from Observational Viewpoints"

Sep. 2011 – May 2012 **Exchange Student**
Northeastern University (the USA), College of Science

Mar. 2013 **B.Sc.**
Meiji University (Japan)
School of Science and Technology
Supervisor: Prof. Tokuzo Shimada
Thesis: "An Equation of State in Stars (Polytropic model and its calculation)"

Work Experience:

Mar. 2023 – present **JSPS overseas research fellow**
University of Cologne (Germany), 1. Physics Institute

Sep. 2021 – Mar. 2023 **Postdoctoral project research fellow**
National Astronomical Observatory of Japan (Japan), Department of Science

Apr. 2021 – Sep. 2021 **Postdoctoral researcher**
Tohoku University (Japan), Graduate School of Science

Mar. 2020 – Apr. 2021 **JSPS postdoctoral research fellow**
Tohoku University (Japan), Graduate School of Science

Sep. 2018 – Mar. 2019 **Part-time Lecturer**
Konan University (Japan), Faculty of Science and Engineering

Apr. 2018 – Feb. 2020 **JSPS postdoctoral research fellow**
Osaka University (Japan), Graduate School of Science

Apr. 2015 – Mar. 2018 **JSPS PhD student research fellow**
Nagoya University (Japan), Graduate School of Science

Grants (as a principal investigator):

Apr. 2024 – Mar. 2025 National Institute for Fusion Science (Japan)
General Purpose Collaborative Research Grant (awarded again)
185,000 JPY (~ 1,115 Euros)
"Towards a general understanding of thermal instability from the interstellar medium to nuclear fusion plasma"

Apr. 2023 – Mar. 2024 National Institute for Fusion Science (Japan)
General Purpose Collaborative Research Grant
185,000 JPY (~ 1,115 Euros)
"Towards a general understanding of thermal instability from the interstellar medium to nuclear fusion plasma"

Sep. 2022 – Mar. 2023 National Astronomical Society of Japan (Japan)
Exploratory Research Grant
450,000 JPY (~ 2,712 Euros)
"The coevolution of dust grain size and the multi-phase molecular cloud"

Apr. 2022 – Mar. 2026 Grants-in-Aid for Scientific Research (Japan Society for the Promotion of Science)
Grant for Early-Career Scientists
4,420,000 JPY (~ 26,600 Euros)
"An unified description of galactic star formation based on the origin of giant molecular clouds"

Sep. 2020 – Mar. 2021 Tohoku University (Japan)
Promotion Program of Early-career Scientist
500,000 JPY (~ 3,015 Euros)
"An unified description of galactic star formation based on the origin of giant molecular clouds"

Apr. 2020 – Mar. 2022 Grants-in-Aid for Scientific Research (Japan Society for the Promotion of Science)
Scientific Research on Innovative Areas
2,470,000 JPY (~ 14,900 Euros)
"Revealing the relation between the formation condition of gravitational-wave massive binaries and their parental galaxies"

Apr. 2018 – Mar. 2021 JSPS postdoctoral research fellow
4,030,000 JPY (~ 24,300 Euros)
"Revealing galaxy evolution based on molecular cloud lifecycle and massive star formation"

Apr. 2015 JSPS PhD student research fellow

– Mar. 2028 2,800,000 JPY (~ 16,900 Euros)
"Connection between galaxy evolution and dark matter by observations and numerical simulations"

Professional Service:

Journal Reviewer	Monthly Notices of the Royal Astronomical Society
Proposal Reviewer	ALMA

Invited Talks in Conferences / Workshops:

Jan. 2024	CfCA users' meeting, National Astronomical Observatory of Japan, Japan
Sep. 2023	2nd Workshop of W50/SS433, National Astronomical Observatory of Japan, Japan
Dec. 2022	Frontiers in Plasma Science 2022, National institute for fusion science, Japan
Dec. 2022	DoS workshop, National Astronomical Observatory of Japan, Japan
Nov. 2017	The Role of Magnetic-fields on Star Formation and Galactic Structures, Kagoshima University, Japan
Nov. 2016	CO Multi-line Imaging of Nearby Galaxies (COMING) workshop 2016, National Astronomical Observatory of Japan, Japan
Apr. 2016	The 110th Seminar on the Formation of Stars & Planets, Nagoya University, Japan

Colloquium / Seminar Talks:

Sep. 2024	Group meeting (Prof. Rolf Kuiper), University of Duisburg-Essen, Germany
Feb. 2023	Guest seminar, Institute for Cosmic Ray Research, Japan
Oct. 2022	Guest seminar, Aoyama-Gakuin University, Japan
Oct. 2022	Guest seminar, University of Tokyo, Japan
Jul. 2022	Konan seminar, Konan University, Japan
Jun. 2022	Ta Colloquium, Nagoya University, Japan
Dec. 2021	NAOJ Camp, Hybrid, Japan
Oct. 2021	NAOJ Science Colloquium, Hybrid, Japan
Feb. 2021	Group A Winter Camp ``Gravitational Wave Genesis'', online, Japan
May 2020	Tohoku Colloquium, Tohoku University, Japan
Dec. 2019	AP seminar, Kyoto University, Japan
Jun. 2019	Lunch Seminar, CEA Saclay, France
Feb. 2019	Seminar, Osaka Sangyo University, Japan
Feb. 2019	ALMA seminar, NAOJ, Japan
Feb. 2018	Konan seminar, Konan University, Japan
Sep. 2017	Sokuho seminar, Hokkaido University, Japan
Jul. 2017	Special Seminar, National Tsing Hua University, Taiwan
Jun. 2017	CompAS seminar, Academia Sinica, Taiwan
Jun. 2017	Group meeting, Institute for Theoretical Astrophysics, Heidelberg, Germany
May. 2017	Visitor seminar, MPIA, Hidelberg, Germany
May. 2017	Guest seminar, The Astronomisches Rechen-Institut, Heidelberg, Germany
May. 2017	Special colloquium, MPIfR, Bonn, Germany
May. 2017	Supplementary colloquium, University of Cologne, Cologne, Germany
Apr. 2017	Lunch Seminar, Osaka University, Japan
Apr. 2017	AP seminar, Kyoto University, Japan
Mar. 2017	SFIR: Star Formation/ISM Rendezvous, Princeton University, the USA

Sep. 2016	Guest seminar, Chinese University of Hong Kong, China
Sep. 2016	Guest seminar, University of Hertfordshire, the UK
Sep. 2016	IoA seminar, University of Cambridge, the UK
Sep. 2016	Guest seminar, Cardiff University, the UK
Sep. 2016	Guest seminar, University of Manchester, the UK
Sep. 2016	Guest seminar, Liverpool John Moores University, Liverpool, the UK
Aug. 2016	Guest seminar, University of Oxford, the UK
Sep. 2015	Guest seminar, ETH Zürich, Switzerland
Jun. 2015	Guest seminar, Columbia University, the USA
Jun. 2014	IPMU lunch seminar, Kavli IPMU, Japan

Other presentations in conferences:

26 presentations in international conferences
68 presentations in domestic conferences/workshops in Japan

Awards:

Nov. 2018	Best 4 Poster Award, Interstellar Filament Paradigm, Nagoya, JAPAN
Sep. 2015	Best 25 Poster Award, The 6th Zermatt ISM Symposium, Zermatt, Switzerland
Jul. 2016	Best Oral Award in the ISM session, School of Astrophysics and Astronomy for young researchers 2016, Japan

Computing time:

Apr. 2024 – Mar. 2025	XC-B+	($\sim 8 \times 10^5$ CPU hours), NAOJ, JAPAN
Apr. 2023 – Mar. 2024	XC-B+	($\sim 8 \times 10^5$ CPU hours), NAOJ, JAPAN
Apr. 2022 – Mar. 2023	XC-B+	($\sim 8 \times 10^5$ CPU hours), NAOJ, JAPAN
Apr. 2021 – Mar. 2022	XC-B+	($\sim 8 \times 10^5$ CPU hours), NAOJ, JAPAN
Apr. 2020 – Mar. 2021	XC-B	($\sim 3 \times 10^5$ CPU hours), NAOJ, JAPAN
Apr. 2019 – Mar. 2020	XC-B	($\sim 3 \times 10^5$ CPU hours), NAOJ, JAPAN
Apr. 2018 – Mar. 2019	XC-B	($\sim 3 \times 10^5$ CPU hours), NAOJ, JAPAN
Apr. 2017 – Mar. 2018	XC-Trial	($\sim 2 \times 10^4$ CPU hours), NAOJ, JAPAN

Supervision of students:

2017	Co-supervise 1 master student on his master thesis project (21cm cosmology)
2017	Co-supervise 1 master student on her first-career project (primordial black hole)
2016	Co-supervise 1 master student on his first-career project (21cm cosmology)
2015	Co-supervise 1 master student on his first-career project (inflation theory)

Organization of scientific meetings:

<u>Conferences/workshops:</u>

Sep. 2024	Supernova Remnant session, German Astronomical Society Annual Meeting, University of Cologne
Dec. 2021	Galactic Star Formation, Online
Dec. 2020	Cloud-to-protostars, Online

Jul. 2017 School of Astrophysics and Astronomy for young researchers 2017

Working Group:

Apr. 2024 – present Low-metallicity interstellar medium working group in CRC1601, University of Cologne

Institutional Responsibilities:

2018 – 2020	Server maintenance, Osaka University
2015 – 2018	Cosmology seminar, Nagoya University
2016	Student seminar (reading “Galactic Dynamics”), Nagoya University
2015	Student seminar (reading fluid dynamics textbooks), Nagoya University

Project membership: (frequency order and alphabetical order)

Radio:	JCMT CHIMPS 2&3, LST, ngVLA-Japan, Nobeyama 45m COMING, SKA-Japan
Infrared:	CCAT-Prime, JCMT BISTRO-J, PRIMA
Optical:	ULTIMATE Subaru
Theory:	Gravitational Wave Genesis

Computer skills:

Simulation Codes:	Athena++, FLASH, RADMC-3D
OS:	Ubuntu, CentOS, Fedora (competent), MacOS (competent), Windows (intermediate)
Languages:	C/C++ (competent), Fortran90 (competent), Python (competent), IDL (intermediate), R (basic)
Visualization:	VisIT (competent), gnuplot (intermediate) yt (basic), Blender (basic)
Text Editor:	Vi (Vim; competent), Emacs (intermediate), gedit (basic), nedit (basic)

OTHERS:

Languages:	English (fluent), Japanese (Native), German (Basic), French (Basic)
Membership:	Astronomical Society of Japan, Theoretical Astrophysics Society of Japan
Motto:	A man with true morality attracts people even without saying anything (Sima Qian)

Publication List

First-author peer-reviewed papers:

6. M. I. N. Kobayashi, K. Iwasaki, K. Tomida, T. Inoue, K. Omukai, K. Tokuda 2023, ApJ, 954, 38
"Metallicity Dependence of Molecular Cloud Hierarchical Structure at Early Evolutionary Stages"
doi: [10.3847/1538-4357/ace34e]
Summary: I performed colliding HI gas flow simulations by systematically changing the gas-phase metallicity and found that (1) molecular cloud formation by HI gas requires longer time in lower metallicity environment due to its inefficient cooling, but (2) the properties of formed molecular clouds are similar within 1 – 0.2 Solar metallicity range.

5. M. I. N. Kobayashi, T. Inoue, K. Iwasaki, K. Tomida, H. Nakatsugawa 2022, ApJ, 930, 76
"Nature of supersonic turbulence and density distribution function in the multiphase interstellar medium"
doi: [10.3847/1538-4357/ac5a54]
Summary: I performed colliding HI gas flow simulations with heating / cooling processes and found that the density probability distribution from HI gas to molecular gas has multiple log-normal components, each of which corresponds to various temperatures.

4. M. I. N. Kobayashi, T. Inoue, S. Inutsuka, K. Tomida, K. Iwasaki, & K. E. I. Tanaka. 2020, ApJ, 905, 95
"Bimodal Behavior and Convergence Requirement in Macroscopic Properties of the Multiphase Interstellar Medium Formed by Atomic Converging Flows"
doi: [10.3847/1538-4357/abc5be]
Summary: I performed colliding HI gas flow simulations to investigate molecular cloud formation with heating / cooling processes by systematically changing the density inhomogeneity in accumulating HI gas and the spatial resolution, and found that the spatial resolution of ~ 0.02 pc is required to converge the molecular cloud mass to fully resolve cooling condensation motion.

3. M. I. N. Kobayashi, H. Kobayashi, S. Inutsuka, and Y. Fukui. 2018, PASJ, 70, S59
"Star formation induced by cloud-cloud collisions and galactic giant molecular cloud evolution"
doi: [10.1093/pasj/psy018]
Summary: I established a semi-analytic formula for the time evolution of giant molecular cloud mass functions with star formation induced by cloud-cloud collisions, and I found that cloud-cloud collision does not have significant impact of the cloud mass function while it may amount to 30 percent of total star formation in the Milky Way galaxy.

2. M. I. N. Kobayashi, S. Inutsuka, H. Kobayashi, and K. Hasegawa. 2017, ApJ, 836, 175
"Evolutionary Description of Giant Molecular Cloud Mass Functions on Galactic Disks"
doi: [10.3847/1538-4357/836/2/175]
Summary: I established a semi-analytic formula for the time evolution of giant molecular cloud mass functions and I found that the power-law index of the cloud mass functions is determined by the balance between the mass-growth and destruction of clouds and thus one can estimate the lifetime of molecular clouds based on observation of cloud mass functions.

1. M. I. N. Kobayashi, A. Leauthaud, S. More, N. Okabe, C. Laigle, J. Rhodes, and T. T. Takeuchi. MNRAS, 2015, 449, 2128
"Can we use weak lensing to measure total mass profiles of galaxies on 20 kpc scales?"
doi: [10.1093/mnras/stv424]
Summary: I analyzed Hubble Space Telescope data to measure the shape shear of galaxies caused by individual galaxy-galaxy gravitational lensing, with which I also predicted that Euclid and WFIRST galaxy-galaxy gravitational lensing observations are able to measure the dark matter distribution on 20 kpc scales in each galactic halo.

Proceedings without peer-review:

4. M. I. N. Kobayashi, S. Inutsuka, H. Kobayashi, and K. Hasegawa. The Multi-Messenger Astrophysics of the Galactic Centre, volume 322 of IAU Symposium, pages 158–159, January 2017
"Time Evolution of the Giant Molecular Cloud Mass Functions across Galactic Disks"

3. M. I. N. Kobayashi, S. Inutsuka, H. Kobayashi, and K. Hasegawa. EAS Publications Series, volume 75 of EAS Publications Series, pages 387–388, May 2016
"The Evolution of Giant Molecular Cloud Mass Function due to Cloud- Cloud Collisions"

2. Inutsuka, T. Inoue, K. Iwasaki, T. Hosokawa, and M. I. N. Kobayashi. From Interstellar Clouds to Star-Forming Galaxies: Universal Processes? volume 315 of IAU Symposium, pages 61–68, 2016
"The Formation and Destruction of Molecular Clouds and Galactic Star Formation"

1. M. I. N. Kobayashi, and T. Takeuchi. Proceedings of LCDU2013, page 76, 2013
"Baryonic Tully-Fisher relation and star formation rate"

Co-author peer-review papers:

36. Y. Choi, ... M. I. N. Kobayashi, … 2024, arXiv, 2411.01960
"The JCMT BISTRO Survey: The Magnetic Fields of the IC 348 Star-forming Region"
[https://ui.adsabs.harvard.edu/abs/2024arXiv241101960C/abstract]

35. A. Konishi, ... M. I. N. Kobayashi, … 2024, PASJ, 76, 1098
"ACA CO(J = 2-1) mapping of the nearest spiral galaxy M 33. II. Exploring the evolution of giant molecular clouds"
[https://ui.adsabs.harvard.edu/abs/2024PASJ...76.1098K/abstract]

34. F. Demachi, ... M. I. N. Kobayashi, … 2024, PASJ, 76, 1059
"Giant molecular clouds and their type classification in M 74: Toward understanding star formation and cloud evolution"
[https://ui.adsabs.harvard.edu/abs/2024PASJ...76.1059D/abstract]

33. J-W. Wang, ... M. I. N. Kobayashi, … 2024, ApJ, 962, 136
"Filamentary Network and Magnetic Field Structures Revealed with BISTRO in the High-mass Star-forming Region NGC 2264: Global Properties and Local Magnetogravitational Configurations"
[https://ui.adsabs.harvard.edu/abs/2024ApJ...962..136W/abstract]

32. F. Maeda, ... M. I. N. Kobayashi, ... 2024, ApJ, 962, 4
"Detection of CO(1-0) Emission at the Tips of the Tidal Tail in the Antennae Galaxies"
[https://ui.adsabs.harvard.edu/abs/2024ApJ...962....4M/abstract]

31. A. Yasuda, ... M. I. N. Kobayashi, ... 2023, PASJ, 75, 743
"CO multi-line imaging of nearby galaxies (COMING). XII. CO-to-H2 conversion factor and dust-to-gas ratio"
[https://ui.adsabs.harvard.edu/abs/2023PASJ...75..743Y/abstract]

30. K. Muraoka, ... M. I. N. Kobayashi, ... 2023, ApJ, 953, 164
"ACA CO(J = 2-1) Mapping of the Nearest Spiral Galaxy M33. I. Initial Results and Identification of Molecular Clouds"
[https://ui.adsabs.harvard.edu/abs/2023ApJ...953..164M/abstract]

29. T. Murase, ... M. I. N. Kobayashi,… 2023, MNRAS, 523, 1373
"Multilognormal density structure in Cygnus-X molecular clouds: a fitting for N-PDF without power law"
[https://ui.adsabs.harvard.edu/abs/2023MNRAS.523.1373M/abstract]

28. A. Yasuda, … M. I. N. Kobayashi,… 2023, PASJ, 034, 51

“CO multi-line imaging of nearby galaxies (COMING). XII. CO-to-H2 conversion factor and dust-to-gas ratio”
[https://ui.adsabs.harvard.edu/abs/2023PASJ..tmp...51Y/abstract]

27. J. Koda, … M. I. N. Kobayashi,… 2023, ApJ, 949, 108
“Diverse Molecular Structures across the Whole Star-forming Disk of M83: High-fidelity Imaging at 40 pc Resolution”
[https://ui.adsabs.harvard.edu/abs/2023ApJ...949..108K/abstract]

26. F. Demachi, ... M. I. N. Kobayashi,… 2023, arXiv:2305.19192
“GMCs and their Type classification in M74: Toward understanding star formation and cloud evolution”
[https://ui.adsabs.harvard.edu/abs/2024PASJ...76.1059D/abstract]

25. J. Karoly, ... M. I. N. Kobayashi,… 2023, arXiv: 2305.11306
“The JCMT BISTRO Survey: Studying the Complex Magnetic Field of L43”
[https://ui.adsabs.harvard.edu/abs/2023ApJ...952...29K/abstract]

24. D. Arzoumanian, S. Arakawa, M. I. N. Kobayashi,… 2023, ApJL, 947, 29
“Insights on the Sun Birth Environment in the Context of Star Cluster Formation in Hub-Filament Systems”
[https://ui.adsabs.harvard.edu/abs/2023ApJ...947L..29A/abstract]

23. D. Ward-Thompson, ..., M. I. N. Kobayashi,… 2023, ApJ, 946, 62
“First BISTRO Observations of the Dark Cloud Taurus L1495A-B10: The Role of the Magnetic Field in the Earliest Stages of Low-mass Star Formation”
[https://ui.adsabs.harvard.edu/abs/2023ApJ...946...62W/abstract]

22. M. Tahani,..., M. I. N. Kobayashi,…2023, ApJ, 944, 139
“JCMT BISTRO Observations: Magnetic Field Morphology of Bubbles Associated with NGC”
[https://ui.adsabs.harvard.edu/abs/2023ApJ...944..139T/abstract]

21. T-C. Ching, …., M. I. N. Kobayashi,… 2022, ApJ, 941, 122
“The JCMT BISTRO-2 Survey: Magnetic Fields of the Massive DR21 Filament”
[https://ui.adsabs.harvard.edu/abs/2022ApJ...941..122C/abstract]

20. J. Hwang, …, M. I. N. Kobayashi, … 2022, ApJ, 941, 51
“The JCMT BISTRO Survey: A Spiral Magnetic Field in a Hub-Filament Structure, Monoceros R2”
[https://ui.adsabs.harvard.edu/abs/2022ApJ...941...51H/abstract]

19. W. Kwon, …, M. I. N. Kobayashi, … 2022 ApJ, 926, 163
“Magnetic Fields in the Filamentary Structures of Serpens Main”
[https://ui.adsabs.harvard.edu/abs/2022ApJ...926..163K/abstract]

18. A.-R. Lyo, …, M. I. N. Kobayashi, … 2021 ApJ, 918, 85
“An 850/450 μm Polarization Study of NGC 2071IR in Orion B”
[https://ui.adsabs.harvard.edu/abs/2021ApJ...918...85L/abstract]

17. R. E. Miura, ..., M. I. N. Kobayashi, ... 2021 MNRAS, 504, 6198
“Revealing the diverse magnetic field morphologies in Taurus dense cores with sensitive sub-millimeter polarimetry”
[https://ui.adsabs.harvard.edu/abs/2021MNRAS.504.6198M/abstract]

16. E. Chakali, ... , M. I. N. Kobayashi, ... 2021 ApJL, 912L 27
“Revealing the diverse magnetic field morphologies in Taurus dense cores with sensitive sub-millimeter polarimetry”
[https://ui.adsabs.harvard.edu/abs/2021ApJ...912L..27E/abstract]

15. H. Kondo, ..., M. I. N. Kobayashi, ... 2021 ApJ, 912, 66
“ALMA Observations of Giant Molecular Clouds in M33 III: Spatially Resolved Features of the Star-Formation Inactive Million-solar-mass Cloud”
[https://ui.adsabs.harvard.edu/abs/2021ApJ...912...66K/abstract]

14. Y. Yajima, ..., M. I. N. Kobayashi. 2020 PASJ, 00, 01,
“CO Multi-line Imaging of Nearby Galaxies (COMING). IX. 12CO(J= 2–1)/12CO(J = 1–0) line ratio in nearby galaxies on kiloparsec scales”
[https://ui.adsabs.harvard.edu/abs/2021PASJ...73..257Y/abstract]

13. N. B. Ngoc, ..., M. I. N. Kobayashi, ..., 2021 ApJ, 908, 10,
“Observations of Magnetic Fields Surrounding LkHα 101 Taken by the BISTRO Survey with JCMT-POL-2”
[https://ui.adsabs.harvard.edu/abs/2021ApJ...908...10N/abstract]

12. D. Arzoumanian, ..., M. I. N. Kobayashi, ..., 2020 A&A, 647, 78
“Dust polarized emission observations of NGC 6334; BISTRO reveals the details of the complex but organized magnetic field structure of the high-mass star-forming hub-filament network”
[https://ui.adsabs.harvard.edu/abs/2021A%26A...647A..78A/abstract]

11. D. J., Eden, ..., M. I. N. Kobayashi, ..., 2020, MNRAS, 498, 5936
“CHIMPS2: survey description and 12CO emission in the Galactic Centre”
[https://ui.adsabs.harvard.edu/abs/2020MNRAS.498.5936E/abstract]

10. Y. Doi, ..., M. I. N. Kobayashi, ..., 2020, ApJ, 899, 28
“The JCMT BISTRO Survey: Magnetic Fields Associated with a Network of Filaments in NGC 1333”
[https://ui.adsabs.harvard.edu/abs/2020ApJ...899...28D/abstract]

9. J. Koda, ..., M. I. N. Kobayashi, ..., 2020, ApJL, 890L, 10
“Systematic Variations of CO J = 2-1/1-0 Ratio and Their Implications in The Nearby Barred Spiral Galaxy M83”
[https://ui.adsabs.harvard.edu/abs/2020ApJ...890L..10K/abstract]

8. S. Coude, ..., M. I. N. Kobayashi, ..., 2019, ApJ, 877, 88
“The JCMT BISTRO Survey: The Magnetic Field of the Barnard 1 Star-forming Region”
[https://ui.adsabs.harvard.edu/abs/2019ApJ...877...88C/abstract]

7. J. Liu., ..., M. I. N. Kobayashi, ..., 2019, ApJ, 877, 43
“The JCMT BISTRO Survey: The Magnetic Field in the Starless Core ρ Ophiuchus C.”
[https://ui.adsabs.harvard.edu/abs/2019ApJ...877...43L/abstract]

6. K. Muraoka, ..., M. I. N. Kobayashi, ..., 2019, PASJ, 71S, 15
“CO Multi-line Imaging of Nearby Galaxies (COMING). VI. Radial variations in star formation efficiency.”
[https://ui.adsabs.harvard.edu/abs/2019PASJ...71S..15M/abstract]

5. J.-W. Wang, ..., M. I. N. Kobayashi, ..., 2019, ApJ, 876, 42
“JCMT BISTRO Survey: Magnetic Fields within the Hub-filament Structure in IC 5146.”
[https://ui.adsabs.harvard.edu/abs/2019ApJ...876...42W/abstract]

4. K. Pattle, ..., M. I. N. Kobayashi, ..., 2019, ApJ, 860L, 6
“First Observations of the Magnetic Field inside the Pillars of Creation: Results from the BISTRO Survey.”
[https://ui.adsabs.harvard.edu/#abs/2018ApJ...860L...6P/abstract]

3. T. Tanaka, K. Hasegawa, H. Yajima, M. I. N. Kobayashi, and N. Sugiyama. 2018, MNRAS, 480, 1925,
“Stellar mass dependence of the 21-cm signal around the first star and its impact on the global signal”
[https://ui.adsabs.harvard.edu/abs/2018MNRAS.480.1925T/abstract]

2. A. Soam, ..., M. I. N. Kobayashi, ..., 2018, ApJ, 861, 65
“Magnetic Fields toward Ophiuchus-B Derived from SCUBA-2 Polarization Measurements.”
[https://ui.adsabs.harvard.edu/abs/2018ApJ...861...65S/abstract]

1. J. Kwon A..., M. I. N. Kobayashi, ..., 2018, ApJ, 859, 4
“A First Look at BISTRO Observations of the ρ Oph-A core.”

[https://ui.adsabs.harvard.edu/abs/2018ApJ...859....4K/abstract]

Books:

N/A

Science paper for future telescopes:

3. M. I. N. Kobayashi, et al.
LST white paper, the ISM chapter (Chapter 1.2)
https://en.lstobservatory.org

2. M. I. N. Kobayashi, et al.
ULTIMATE-Subaru GLAO PDR white paper, the nearby galaxy chapter

1. M. I. N. Kobayashi, K. Tokuda, ngVLA JAPAN memo-series, 2021, March
“Towards a comprehensive understanding of molecular cloud life cycle based on HI observations with the ngVLA”
https://ngvla.nao.ac.jp/researcher/memo/

Overview Article for the general public:

1. M. I. N. Kobayashi,
“Evolution of Giant Molecular Cloud Mass Functions and Star Formation across a Galactic”, Astronomical Herald, 2018 September (in Japanese)
[https://www.asj.or.jp/geppou/archive_open/2018_111_09/111-9_589.pdf]