Taeho Ryu

http://taehoryu.com

CONTACT INFORMATION

The Max-Planck Institute for Astrophysics,
Karl-Schwarzschild-Str. 1
85748, Garching, Germany

E-mail: tryu@mpa-garching.mpg.de
Phone: +1 5515740406, +49 1743130001
Citizenship : Korean citizen
U.S. legal permanent resident

RESEARCH

Primary interests: time domain astronomy, multi-messenger transients, tidal disruption events, gravitational waves, formation of runaway/hypervelocity stars, supermassive black hole binaries, formation and interaction of black holes in the early universe - AGN & high-mass X-ray binaries, dynamics of stellar clusters, exoplanets.

Methods: relativistic and Newtonian magnetohydrodynamics simulation, N-body simulations, time-dependent Fokker-Planck integrator, stellar evolution simulation

ACADEMIC APPOINTMENTS

The University of Colorado, Boulder, USA — 2025–
Assistant Professor

JILA, the University of Colorado, Boulder, USA — 2025–
Associate JILA fellow

The Max-Planck Institute for Astrophysics - MPA, Germany — 2021– present
MPA prize fellow

Johns Hopkins University - JHU, USA — 2018 – 2021
Postdoctoral research fellow

Korea Institute for Advanced Study - KIAS, South Korea — 2011 – 2012
Research assistant to Prof. Kimyeong Lee (Department of Physics)

EDUCATION

Stony Brook University - SBU, USA — 2012 – 2018
Ph.D., Physics, 2018 (Advisor: Prof. Rosalba Perna)
M.A., Physics, 2014

Seoul National University - SNU, South Korea — 2005 – 2011
B.S. in Chemistry & Physics (Double-major/Cum Laude)
Teaching practicum in Chemistry
⋆2 years of mandatory military service

HONORS, AWARDS AND AFFILIATION

Dresden Prize (for outstanding theoretical thesis), SBU — 05/2018

Peter B. Kahn Fellowship, SBU — 05/2016

SNUANY Scholarship Award, SNU Alumni Association of Greater New York — 11/2014

SNUANY Scholarship Award, SNU Alumni Association of Greater New York — 12/2013

Benjamin Lee Award, SBU — 05/2013

SNU Outstanding Student award (Twice winner), SNU — 2009 - 2010

National Scholarship for Science & Engineering (Thrice winner) — 2009 - 2010

Scholarship for Superior Academic Performance (Five-time winner),SNU — 2005 - 2007

Supercomputing Allocations

Principal Investigator: *HLRS* (Stuttgart tier 1), project name : *Global Relativistic Magneto-hydrodynamics Simulations of the Long-term Evolution of Tidal Debris in Tidal Disruption Events of Stars*, amount : **55M** cpu hours on Hawk
⋆ annual report selected for presentation with publication in the proceedings of 2023 HLRS Review workshop.

Principal Investigator (Co-PI: Volker Springel): *NHR@FAU* (tier 2), project name : *Transient formation in three-body encounters between stars and black holes*, amount : **3.6M** cpu hours on Fritz

Project Manager (PI: Selma de Mink): *NHR@FAU* (tier 2), project name : *3D hydrodynamics simulations of mass transfer in interacting binaries*, amount : **3.4M** cpu hours on Fritz

Invited Talks

GSSI Special Seminar, the Gran Sasso Science Institute, Italy	11/2024
IMPRS Symposium, Germany	11/2024
SCEECS Seminar, USA	11/2024
GW/BH Seminar, University of Zurich, Switzerland	10/2024
HEACOSS 2024, Armenia	10/2024
Tea Seminar, University of Heidelberg, Germany	7/2024
Institute Seminar, MPA, Germany	7/2024
Seventeenth Marcel Grossmann meeting, Italy	7/2024
Department Colloquium, the University of Oklahoma, USA	3/2024
Department Colloquium, the University of Colorado, Boulder, USA	2/2024
Department Colloquium, the University of California, San Diego, USA	2/2024
Department Colloquium, the Institute for Astronomy at the University at Hawaii, USA	2/2024
Department Seminar, the Univeristy of the Balearic Islands, Spain	12/2023
Astronomy Seminar, the Univeristy of Nova Gorica, Slovenia	11/2023
Department Colloquium, Kyung Hee University, Korea	11/2023
Plasma Physics Seminar, Max Planck Institute for Plasma Physics, Germany	11/2023
Department Colloquium, SNU, Korea	10/2023
Colloquium, Korea Astronomy & Space Science Institute, Korea	10/2023
Lagrange Seminar, Lagrange Laboratoire, France	09/2023
Astronomy Seminar, Max-Planck Institute for Gravitational Physics(AEI), Germany	09/2023
Special Seminar, New York University, USA	09/2023
Astronomy Seminar, Columbia University, USA	09/2023
Astronomy Seminar, Stony Brook University, USA	09/2023
Special Seminar, Northwestern University(CIERA), USA	08/2023
MPA/Kavli Summer Program Seminar, MPA, Germany	06/2023

HUJI Astrophysics Seminar, HUJI, Isreal 03/2023

2022 MIAPP Conference "The Fundamental Role of Stellar Multiplicity in Stellar Dynamics and Evolution", MIAPP, Germany 11/2022

Department Colloquium, University of Tübingen, Germany 07/2022

Black Hole Workshop, Niels Bohr Institute, Denmark 06/2022

MPA Seminar, MPA, Germany 10/2021

Astro UdeC Seminar, the Universidad de Concepción, Chile 04/2021

CTC Seminar, University of Maryland, USA 06/2019

Wine& Cheese Seminar, JHU, USA 04/2019

Department Seminar, SBU, USA 04/2018

Numerical Scattering Workshop, Flatiron Institute, USA 12/2017

Black Hole Network Workshop, Flatiron Institute, USA 12/2016

MODEST-16 NYC Gas and Gravitational Dynamics, USA 09/2016

Frontier Research in Astrophysics − II, Italy 05/2016

Astronomy Seminar, Columbia University, USA 05/2016

Contributed Talks

MODEST24, Nicolaus Copernicus Astronomical Center, Poland 08/2024

Korean Astronomical Society Fall Meeting, KAS, Korea 10/2023

Two in a Million, ESO, Germany 09/2023

MODEST23, Northwestern University, USA 08/2023

European Astronomical Society Annual Meeting, Krakow, Poland 07/2023

The Black Holes and Gravitational Waves Munich Day, Germany 05/2023

Aspen Workshop "Extreme Black Holes", USA 03/2023

WE Heraeus-EAS Early Career Researchers in Astr. Workshop, Germany 03/2023

XMM-Newton Workshop 2022, Spain 06/2022

Growing Black Holes: Accretion and Mergers, Nepal 05/2022

SESTAS Meeting, MPA 10/2021

HotSci@JHU/STScI, STScI 08/2021

European Astronomical Society Annual Meeting, Leiden 07/2021

Tidal Disruptions in Kyoto: Confronting Theory with Observations, Kyoto University, Japan 01/2020

Posters

MODEST24, Nicolaus Copernicus Astronomical Center, Poland 08/2024

Distorted Astrophysical disks, University of Cambridge 05/2021

The 7$^{\text{th}}$ Annual Johns Hopkins Postdoctoral Conference, JHU 04/2021

Student Supervision

Ian Johnson 2024-present
(Master's student, co-supervision with Prof. Rosalba Perna)

Institute: Stony Brook University, USA
Project: Hydrodynamics simulations of tidal disruption encores
Method: Hydrodynamics modeling with Arepo

Elias Mamuzic 2023-present
(Master's student, co-supervision with Prof. Sherry Suyu)

Institute: Technical University of Munich, Germany
Project: Gravitational Lensing of Tidal Disruption Events
Method: Monte-Carlo simulations for gravitational lensing with temperature- dependent luminosity models

Alonso Herrera 2022-2024
(Master's student, co-supervision with Prof. Nathan Leigh)→ Master's degree awarded

Institute: Universidad de Concepción, Chile
Project: Identification of runaway stars using Gaia data
Method: Analytic estimates for ejection velocity, analysis of Gaia data

Magdalena Andrea Vilaxa Campos 2022-2023
(Master's student, co-supervision with Prof. Nathan Leigh)

Institute: Universidad de Concepción, Chile
Project: Stream penetration into mass accretor in Roche-lobe overflow in interacting binaries
Method: Analytic estimates and hydrodynamics simulations

Kaitlyn Szekerczes 2022-2023
(PhD student, co-supervisionwith Prof. Sherry Suyu)

Institute: formerly a fulbright fellow at MPA → PhD student at Pennsylvania State University
Project: Estimate of strongly-lensed tidal disruption event detection rate by LSST
Method: Monte-Carlo simulations for gravitational lensing

Pavan Vynatheya 2022-2024
(PhD student, co-supervision with Dr. Rüdiger Pakmor, Prof. Selma de Mink)

Institute: Formerly a PhD student at MPA → Prize fellow at CITA
Project: Remnant properties of partially disrupted stars by stellar-mass black holes
Method: Stellar evolution and hydrodynamics simulations

Certification

Korean National Teacher Certification 2011

Teaching Experience

Lecturer, MPA, Germany 08/2017
Delievered a lecture for hydrodynamics at the MPA/Kavli Summer Program

Lecturer, MPA, Germany 06/2017
Delievered lectures for hydrodynamics and led tutorial sessions at a one-day workshop for hydrodynamics simulations at MPA

Guest lecturer, AST200 Course by Prof. Jin Koda, SBU, USA 02/2017
Delivered a lecture for black holes to undergraduate students

Teaching Assistant, Department of Physics and Astronomy, SBU, USA 2012-2014
Prepared physics lab experiments and assisted students in conducting experiments

Teacher, Seoul National University Girls' Middle School, South Korea Spring 2011
Taught middle-school students chemistry as part of the teaching practicum course

Teaching Assistant, Language Education Institute, SNU, South Korea Spring 2011
Volunteer work to assist students who are hearing impaired in their coursework.

Lecturer, Central Library, SNU, South Korea Spring 2009
Voluneteer work to enhance librarians' grasp of basic scientific concepts in chemistry and physics

Lecturer, Hansung high school, South Korea Spring 2009
Volunteer work to each mathematics for high-school students

Professional Service

Referee for *Monthly Notices of the Royal Astronomical Society, The Astrophysical Journal, Publications of the Astronomical Society of the Pacific*

NASA (2023), member of review panel
IMPRS (2023), member of PhD application review panel

Press Release

Close Encounters of stars with the black hole binaries kind 2/2023
- Astrobites: https://astrobites.org/2023/02/02/close-encounters-of-stars-with-the-black-hole-binaries-kind

Supercomputer Simulations Test Star-destroying Black Holes 11/2021
- Making a movie in collaboration with NASA for the annual event "Black Hole Friday"
- Official webpage: https://svs.gsfc.nasa.gov/14000
- ∼0.3M views on YouTube in less than a week (https://www.youtube.com/watch?v=ALnlZcRoQDY&t=23s)
- Articles in public science media: Phys.org, Sciencealert.com, the Jerusalem Post, SciTechDaily and so on.

The NEW PHYSICS of Black Hole Star Capture — Extreme Tidal Disruption Events - PBS Space 11/2021
- ∼0.35M views on YouTube in two weeks (https://youtu.be/x72uFHh3oek?si=Z74ZWDc0JeqxbrHm)

Scientific Outreach experience

Open Day, MPA 10/2024
Preparation and execution of a session rocket launching and public lecture about black holes.

Girls' day, MPA 04/2023
Preparation and execution of one of the five sessions where a group of high-school female students complete a given scientific task.

SEDS Celestia, BITS Pilani 01/2023
Invited public lecture about black holes and tidal disruption events

Member of the MPA Planetarium Team 04/2022 - present

Present a planetarium show, public science lecture or talk to students visiting MPA

The Johns Hopkins Korean Graduate Student Association, JHU 09/2019

Invited public talk for Networking night (annual event)

Leadership experience

Local Organizer of LISA AstroWG meeting, MPA 11/2024

more than 100 participants
Role: Local organizer and social media coordinator

Organizer of AREPO tutorial workshop, MPA 06/2023

Role: Organize and conduct 1-day AREPO tutorial workshop (20 participants) for stellar astrophysics application of AREPO, consisting of lectures for the introduction to hydrodynamics simulations and exercise

Seminar organizer, the Stellar Department at MPA 09/2021 - 09/2022

Role: invite speakers (typically two speakers for each week), schedule seminars and chair the sessions for talks and discussions (along with two other organizers)

Department of Chemistry, SNU, South Korea 2005 - 2006

Department Activities Representative and Organizer
(Student competitions, membership training, freshmen welcoming, etcetera)

SNU Campus Life and Culture Center, SNU, South Korea 2010 - 2011

Mentor-team Manager in SNU Compliance/Mentoring Program
Elected Leader (20 members, My team chosen Best Team of the Year)

Computational experience

Computing Skills: Fortran, C/C++, Python

Code: code-testing of multi-domain infrastructure PATCHWORKMHD, usage of GRMHD code HARM3D, Moving-mesh magnetohydrodynamics code Arepo (https://arepo-code.org/), Newtonian AMR hydrodynamics code CASTRO (https://amrex-astro.github.io/Castro/)

Analysis: Python, Matplotlib, Paraview, Mathematica

High Performance computing: USA (Frontera, Stampede, Rockfish, Seawulf), Germany (Hawk hlrs, SuperMUC Leibniz, Cobra, Raven, Freya)

Affiliation

Junior Member of the International Astronomical Union 06/2022 - present

Member of LISA consortium 11/2022 - present

Member of the Korean Science-Engineering Association 09/2014 - present

Non-Scientific Outreach experience

SNU Obstacle Person Support Center, SNU Spring 2009

Assistant to a hearing-impaired student, and provider of study aid

Kyujanggak Institute for Korean Studies, SNU Spring 2011

Docent
Program: Improving public understanding of Documentary Heritage of Chosun Dynasty

Museum of Art, SNU Spring 2011

Docent

Program: Improving public understanding of interactive media art in the Garden of Forking Paths

MILITARY SERVICE **Military Required Service**, South Korea 2007 – 2009

Honorably Discharged as a Sergeant

Served inter alia in Food/Water Inspectorate (Laboratory) plus assist. mgmt.

References

Professor Rosalba Perna (Associate Department Chair)
Department of Physics and Astronomy, Stony Brook University
Stony Brook, NY 11794-3800, USA
Telephone: +1 (631) 632 1550
Email: rosalba.perna@stonybrook.edu

Professor Selma de Mink (Scientific Director)
The Max Planck Institute for Astrophysics
Karl-Schwarzschild-Str. 1, 85748, Garching, Germany
Telephone: +49 89 30000 - 2201
Email: sedemink@MPA-Garching.MPG.DE

Professor Volker Springel (Scientific Director)
The Max Planck Institute for Astrophysics
Karl-Schwarzschild-Str. 1, 85748, Garching, Germany
Telephone: +49 89 30000 - 2195
Email: vspringel@MPA-Garching.MPG.DE

Professor Sherry Suyu
Technical University of Munich
TUM School of Natural Sciences, Department of Physics
James-Franck-Str. 1, 85748 Garching, Germany
Telephone: +49 (0)89 289 53620
Email: sherry.suyu@tum.de

Professor Zoltan Haiman
Department of Astronomy and Astrophysics, Columbia University
548 West 120th Street, Pupin Hall, Room 3128, New York, NY 10027
Telephone: +1 (212) 854 6822
Email: zh2007@columbia.edu

Professor Julian Krolik
Department of Physics and Astronomy, Johns Hopkins University
Bloomberg Center for Physics and Astronomy,
3400 N. Charles Street, Baltimore, MD 21218, USA
Telephone: +1 (410) 664 7077
Email: jhk@jhu.edu

Professor Tsvi Piran (Schwartzman Chair for Theoretical Physics)
Racah Institute for Physics, The Hebrew University of Jerusalem
Edmond J. Safra Campus, Jerusalem 9190401, Israel
Telephone: +972 26584233
Email: tsvi.piran@mail.huji.ac.il

Publications

ads link: https://ui.adsabs.harvard.edu/user/libraries/mbdD-GljSZ-nQ6a7LbzzQw

Books

45. **Ryu, T.**, Wever, T., *Tidal Disruption Events*, To appear in Chapter 5 in the review book *Black Holes in the Era of Gravitational Wave Astronomy*, ed. Arca Sedda, Bortolas, Spera, pub. Elsevier, arXiv: 2310.16879

44. Wang, C., **Ryu, T.**, *Blue Straggler Stars*, To appear in a chapter for *the Encyclopedia of Astrophysics*, ed. I. Mandel, F.R.N. Schneider, pub. Elsevier, arXiv: 2410.10314

Submitted Articles

43. **Ryu, T.**, Sills, A., Pakmor, R., de Mink, S., Mathieu, R., *Magnetic Field Amplification during Stellar Collisions between Low-Mass Stars*, arXiv:2410.00148 (2024)

42. Krolik, J., Piran, T., **Ryu, T.**, *Follow the Mass - A Concordance Picture of Tidal Disruption Events*, submitted to ApJ (2024), arXiv: 2409.02894

41. Herrera-Urquieta, A., Leigh, N., Pinto, J., Díaz-Cerda, G., Grondin, S. Webb, J., Mathieu, R., **Ryu, T.**, Geller, A., Kounkel, M., Toonen, S., Vilaxa-Campos, M., *Systematic method to identify runaways from star clusters produced from single-binary interactions: A case study of M67*, submitted to MNRAS (2024).

40. Wang, Y., Graham, M.J., McKernan, B., Ford, K.E.S., **Ryu, T.**, Stern, D, *Conditions for Changing-Look AGNs from Accretion Disk-Induced Tidal Disruption Events*, submitted to ApJ (2024), arXiv: 2406.12096

Articles in Refereed Journals

39. Broggi, L., Stone, N., **Ryu, T.**, Bortolas, E., Dotti, M., Bonetti, M., Sesana, A., *Repeating partial disruptions and two-body relaxation*, OJAp 7, 48 (2024), arXiv: 2404.05786

38. Vynatheya, P., **Ryu, T.**, Pakmor, R., de Mink, S., Perets, H., *Simulating the Tidal Disruption of Stars by Stellar-mass Black Holes Using Moving-mesh Hydrodynamics*, A&A 685, 45 (2024), arXiv: 2310.14852

37. **Ryu, T.**, Perna, R., Cantiello, M., *Tidal Disruption Encores*, ApJ 965, 25 (2024), arXiv: 2402.15990

36. Lazzati, D., Perna, R., **Ryu, T.**, *Ephemeral Flaring Transients Following Supernova Explosions in Black-Hole Binary Systems*, accepted for publication in ApJL (2024), arXiv:2403.18911

35. **Ryu, T.**, Amaro Seoane, P., Taylor, A., Ohlmann, S., *Collisions of Red Giants in Galactic Nuclei*, MNRAS 528, 6193 (2024), arXiv: 2307.07338
⋆ selected as the research highlight of the month in November 2023 by the Max Planck Insitute for Astrophysics (https://www.mpa-garching.mpg.de/1085421/hl202309)

34. Liu, Z., **Ryu, T.**, Goodwin, A., Rau, A., Homan, D., Krumpe, M., Merloni, A., Grotova, I., Anderson, G., Malyali, A., Miller-Jones, J., *Rapid evolution of the recurrence time in the repeating partial tidal disruption event eRASSt J045650.3-203750*, A&A 683, 13 (2024), arXiv:2401.14091

33. Szekerczes, K., **Ryu, T.**, Suyu, S. H., Huber, S., Oguri, M., Dai, L. *Strong lensing of tidal disruption events: Detection rates in imaging surveys*, accepted for publication in A&A (2024), arXiv:2402.03443

32. Xin, C., H. Haiman, Z., Perna, R., Wang, Y., **Ryu, T.** *Tidal Peeling Events: Low-eccentricity Tidal Disruption of a Star by a Stellar-mass Black Hole*, ApJ 961, 149 (2024), Arxiv: 2303.12846

31. Dessart, L., **Ryu, T.**, Amaro Seoane, P., Taylor, A., *Light curves and spectra for theoretical models of high-velocity red-giant star collisions*, A&A 682, 58 (2024), arXiv: 2310.07036

30. Avara, M., Krolik, J., Campanelli, M., Noble, S., Bowen, D., **Ryu, T.**, *Accretion onto a Supermassive Black Hole Binary Before Merger*, accepted for publication in ApJ (2024), arXiv:2305.18538

29. **Ryu, T.**, McKernan, B., Ford, K.E.S., Cantiello, M., Graham, M.J., Stern, D, Leigh, N.W.C. *In-plane Tidal Disruption of Stars in Disks of Active Galactic Nuclei*, MNRAS 527, 8103 (2024), arXiv: 2310.00610

28. **Ryu, T.**, de Mink, S., Farmer, R., Pakmor, R., Perna, R., Springel, V., *Close Encounters of Star-black Hole Binaries with Single Stars*, MNRAS 527, 2734 (2024), arXiv:2307.03097

27. Bellinger, E., Caplan, M., **Ryu, T.**, Bollimpalli, D., Ball, W., Kühnel, F., Farmer, R., de Mink, S., Christensen-Dalsgaard, J, *Solar evolution models with a central black hole*, ApJ 959, 113 (2023)

26. **Ryu, T.**, Krolik, J., Piran, T., Noble, S., Avara, M., *Shocks Power Tidal Disruption Events*, 957, 12 ApJ (2023), arXiv:2305.05333

25. **Ryu, T.**, Valli, R., Pakmor, R., Perna, R., de Mink, S., Springel, V., *Close Encounters of Black Hole-star Binaries with Stellar-mass Black Holes*, MNRAS 525, 5752 (2023), arXiv:2304.01792

24. Franchini, A., Bonetti, M., Lupi A., Miniutti, G., Bortolas, E., Giustini, M. , Dotti., M., Sesana, A., Arcodia, R., **Ryu, T.** *QPEs from Impacts between the Secondary and a Rigidly Precessing Accretion Disc in an EMRI System*, A&A 675, 100 (2023), Arxiv: 2304.00775

23. Bortolas, E. , **Ryu, T.**, Broggi, L., Sesana, A. *Partial Stellar Tidal Disruption Events and Their Rates*, MNRAS 524, 3026 (2023), Arxiv: 2211.02734

22. **Ryu, T.**, Perna, R., Parkmor, R., Ma, J., Farmer, R., de Mink, S. *Close Encounters of Tight Binary Stars with Stellar-mass Black Holes*, MNRAS 519, 5787 (2023), arXiv: 2211.02734

21. **Ryu, T.**, Krolik, J., Piran, T. *Extremely Relativistic Tidal Disruption Events*, ApJL 946, 33 (2023), arXiv: 2211.00059

20. **Ryu, T.**, Perna, R., Wang, Y. *Close Encounters of Stars with Stellar-mass Black Hole Binaries*, MNRAS 516, 2204 (2022), arXiv: 2206.00603

19. **Ryu, T.**, Trani, A. A. , Leigh, N.W.C. *Tidal Disruption Events by Compact Supermassive Black Hole Binaries*, MNRAS 515, 2430 (2022), arXiv: 2202.07668

18. McKernan, B., Ford, K.E.S., Cantiello, M., Graham, M.J., Jermyn, A.S., Leigh, N.W.C., **Ryu, T.**, Stern, D. *Starfall: A Heavy Rain of Stars in 'Turning on' AGN*, MNRAS 514, 3 (2022), arXiv: 2110.03741

17. **Ryu, T.**, Krolik, J., Piran, T. *The Impact of Shocks on the Vertical Structure of Eccentric Disks*, ApJ 920.2, 130, arXiv: 2105.09434 (2021)

16. **Ryu, T.**, Krolik, J., Piran, T. *Measuring Stellar and Black Hole Masses of Tidal Disruption Events*, ApJ 904.1, 73 (2020), arXiv: 2007.13765

15. Krolik, J., Piran, T., **Ryu, T.** *Tidal Disruptions of Main Sequence Stars – V. The Varieties of Disruptions*, ApJ 904.1, 68 (2020), arXiv: 2001.03234

14. **Ryu, T.**, Krolik, J., Piran, T., Noble, N. *Tidal Disruptions of Main Sequence Stars – IV. Relativistic Effects and Dependence on Black Hole Mass*, ApJ 904.2, 101 (2020), arXiv: 2001.03504

13. **Ryu, T.**, Krolik, J., Piran, T., Noble, N. *Tidal Disruptions of Main Sequence Stars – III. Stellar Mass Dependence of the Character of Partial Disruptions*, ApJ 904.2, 100 (2020), arXiv: 2001.03503

12. **Ryu, T.**, Krolik, J., Piran, T., Noble, N. *Tidal Disruptions of Main Sequence Stars – II. Simulation Methodology and Stellar Mass Dependence of the Character of Full Tidal Disruptions*, ApJ 904.2, 99 (2020), arXiv: 2001.03502

11. **Ryu, T.**, Krolik, J., Piran, T., Noble, N. *Tidal Disruptions of Main Sequence Stars – I. Observable Quantities and their Dependence on Stellar and Black Hole Mass*, ApJ 904.2, 98 (2020), arXiv: 2001.03501

10. **Ryu, T.**, Zingale, M., Perna, R. *Turbulence-driven Thermal and Kinetic Energy in the Atmospheres of Hot Jupiters*, MNRAS 481, 5517 (2018)

9. Ibragimov, T., Leigh, N., W. C., **Ryu, T.**, Panurach, T., Perna, R. *When Do Star Clusters Become Multiple Star Systems? II. Toward a Half-life Formalism For Arbitrary Particle Masses*, MNRAS 477, 4213 (2018)

8. **Ryu, T.**, Perna, R., Haiman, Z., Ostriker, J. P., Stone, N. C. *Interactions between Multiple Supermassive Black Holes in Galactic Nuclei: a Solution to the Final Parsec Problem*, MNRAS 473, 3410 (2018)

7. Belczynski, K., **Ryu, T.**, Perna, R., Berti, E., Tanaka, T. L., Bulik, T. *On the Likelihood of Detecting Gravitational Waves from Population III Compact Object Binaries*, MNRAS 471, 4702 (2017)

6. **Ryu, T.**, Leigh, N., W. C., Perna, R. *Formation of Runaway Stars in a Star-cluster Potential*, MNRAS 470, 3049 (2017)

5. **Ryu, T.**, Leigh, N., W. C., Perna, R. *An Analytic Method for Identifying Dynamically-formed Runaway Stars*, MNRAS 470, 2 (2017)

4. **Ryu, T.**, Leigh, N. W. C., Perna, R. *Numerical Study of the $N = 4$ Binary-binary Scatterings in a Background Potential*, MNRAS 467, 4447 (2017)

3. **Ryu, T.**, Tanaka, T. L., Perna, R., Haiman, Z. *Intermediate-mass Black Holes from Population III Remnants in the First Galactic Nuclei*, MNRAS 460, 4122 (2016)

2. **Ryu, T.**, Tanaka, T. L., Perna, R. *Formation, Disruption and Energy Output of Population III X-ray Binaries*, MNRAS 456, 223 (2016)

Articles in conference proceedings

1. **Ryu, T.**, Tanaka, T. L., Perna, R. *Population III X-Ray Binaries*, in"Frontier Research in Astrophysics − II", Italy, (2016).