Beibei Liu

Curriculum Vitae

Personal Information

Work	Department of Physics, Zhejiang University
Address:	38 Zheda Road, Hangzhou, 310027 China
E-mail:	bbliu@zju.edu.cn
Homepage:	https://person.zju.edu.cn/en/bbliu
Nationality:	China

Education

2006–2010 **Bachelor of Physics**, Xiamen University, China

2010–2015 **Ph.D. of Astrophysics**, Peking University, China

2013.01-04 **Visiting Graduate Scholar**, University of California, Santa Cruz, USA

- Supervisor: *Dr. Douglas, N.C. Lin*
- Ph.D. Thesis: Migration and growth of embryos in protoplanetary disks

Employment

2015–2018 **Postdoc**, University of Amsterdam, the Netherlands

2018–2020 **Postdoc & Researcher**, Lund University, Sweden

Visiting Scholar

2020.01 Tsung-Dao Lee Institute, China

2017.12 Earth-Life Science Institute, Japan

Research Interests

I study planet formation and exoplanets. My research interests include

- Formation and evolution of solar system and exoplantary systems
- Protoplanetary disk and accretion physics
- Planet dynamics, planet-disk interaction
- Atmospheric dynamics of extrasolar planets

Awards & Honors

2014 Scholarship of Academic Excellence, Peking University (top 10% level university award)

2013 National Scholarship, Peking University (top 10% level Chinese scholarship)

2010 The National Astronomical Observatory scholarship, Chinese Academy of Sciences

Grants

2018-2020 PI, the Swedish Walter Gyllenberg Foundation, 136,000 SEK

A parameter study of the hybrid planetesimal-pebble accretion for the protoplanets growth

A parameter study of the hybrid planetesimal-pebble accretion for the protoplanets growth

2021-2023 PI, Joint China-Sweden Mobility, STINT, 570,000 SEK

The formation of exoplanetary systems of low-mass ultra-short-period and massive distant planets, and the long-term evolution induced by a stellar companion

2020-2026 PI, start-up grant of Bairen program from Zhejiang University, 2,000,000 RMB

Invited Seminar & Colloquium

2021.04 *From dust to planets*, *colloquium*.
University of Nevada, Las Vegas, USA

2020.06 *Planet formation around low-mass stars and brown dwarfs*, *seminar*.
National Astronomical Observatory of Japan,Japan

2020.05 *From dust to planets*, *seminar*.
Max Planck Institute for Astronomy, Germany

2020.02 *Overview of exoplanets*, *seminar*.
Stockholm University, Sweden

2020.01 *A tale of planet formation*, *seminar*.
Tsung-Dao Lee Institute, China

2019.10 *From pebbles to planets*, *seminar*.
University of Bern, Switzerland

2019.10 *From pebbles to planets*, *seminar*.
University of Zurich, Switzerland

2019.09 *Planet formation around stars of different masses*, *colloquium*.
Nanjing University, China

2019.07 *Planet formation around stars of different masses*, *seminar*.
Shanghai Jiaotong University, China

2018.02 *Formation of TRAPPIST-1 system*, *colloquium*.
Lund University, Sweden

Selected Conference Talks

2019.07 *Super-Earth masses sculpted by pebble isolation*, ***invited talk***.
Astrophysical Dynamics Conference, Shanghai, China

2019.06 *Planetesimal growth after the streaming instability*, *contributed talk*.
From star to planet II, Gothenberg, Sweden

2019.06 *Pebble-driven planet formation around different type of stars*, *contributed talk*.
Trappist-1 conference, Liege, Belgium

2017.05 *Re-arrange the orbits of super-Earths by magnetospheric rebound*, ***invited talk***.
Exoplanets and planet formation, Shanghai, China

2016.07 *Dynamical re-arrangment of super-Earths during disk dispersal*, ***invited talk***.
New directions in planet formation, Leiden, the Nederlands

2016.04 *Growth and migration of planets: dependence on stellar mass and metallicity*, *contributed talk*.

Young solar systems, Sant Cugat, Spain

2015.02 *Growth and migration of planets: gas giants' cores vs super-Earths*, *contributed talk.*
East asian young astronomers meeting, Taipei, China

2014.08 *Growth and migration of embryos in protoplanetary disks*, *contributed talk.*
ISSI-BJ workshop, Beijing, China

2013.06 *Atmospheric circulation of hot Jupiters*, *lunch talk.*
KIAA at Peking University, Beijing, China

2013.02 *Formation of gas giant planets in multiple planetary systems*, *contributed talk.*
Kepler era conference, Aspen, USA

Teaching

2019.09 Introduction to Astrophysics, lecturer
Lund University, Sweden

2018.03 Planet formation lectures on streaming instability & pebble accretion, lecturer
University of Amsterdam, the Netherlands

2014.11 Planets in our solar systems, Science communication talk
Beijing Planetarium, Beijing, China

2014.05-06 Spring school on planet formation, teaching assistant
Tsinghua University, China

2012.09 Main undergraduate course on classical mechanics, teaching assistant
Peking University, China

Supervision & Collegial leadership duty

2020.04 Co-organizer of TDE conference
Hangzhou, China

2018.02 Co-organizer of the ELTs for all conference
Lund Observatory, Sweden

2018.09- Co-organizer of planet formation seminar
Lund University, Sweden

2018.09- Dust drift and concentration in protoplanetary disks, co-supervision of PhD, *Linn Eriksson*
Lund University, Sweden

2019.06-08 Early formation of massive, distant giant planets, Master summer project, *John Wimarsson*
Lund University, Sweden

2019.02-06 How stellar tides affect close-in planets, Bachelor thesis, *Madison Green*
Lund University, Sweden

2016.02-06 Kozai-Lidov mechanism in planetary systems, Bachelor thesis, *Maarten Muller*
University of Amsterdam, the Netherlands

Reviewer service

referee for the leading international journals, including **Science**, The Astrophysical Journal (ApJ), The Astrophysical Journal Letters (ApJL), Astronomy & Astrophysics (AA), The Monthly Notices of the Royal Astronomical Society (MNRAS) and The Astronomical Journal (AJ).

Publication List

ORCID:0000-0001-5830-3619

H-index: 12, total citations: 477, from Google Scholar, consulted June, 2021

1. An early dynamical instability among the Solar System's giant planets triggered by the gas disk's dispersal

Beibei Liu, Sean Raymond, and Seth Jacobson, 2021, Nature under review

2. [**invited review**] A tale of planet formation: from dust to planets

Beibei Liu, and Jianghui Ji, 2020, RAA

3. Early formation of multiple, distant giant planets

John Wimarsson, **Beibei Liu**, and Masahiro Ogihara, 2020, MNRAS

4. Pebble-driven planet formation around very low-mass stars and brown dwarfs

Beibei Liu, Michiel Lambrechts, Anders Johansen, Ilaria Pascucci and Thomas Henning, 2020, accepted in A&A

5. Pebble drift and planetesimal formation in protoplanetary discs with embedded planets

Linn Eriksson, Anders Johansen and **Beibei Liu**, 2020, A&A

6. Super-Earth masses sculpted by pebble isolation around stars of different masses

Beibei Liu, Michiel Lambrechts, Anders Johansen and Fan Liu, 2019, A&A

7. A Pebble-driven formation model for compact planetary systems like TRAPPIST-1

Djoeke Schoonenberg, **Beibei Liu**, Chris W. Ormel, and Caroline Dorn, 2019, A&A

8. Growth after the streaming instability:From planetesimal accretion to pebble accretion

Beibei Liu, Chris W. Ormel, and Anders Johansen, 2019, A&A, 624A, 114L

9. Catching drifting pebbles II. A stochastic equation of motion for pebbles

Chris W. Ormel, **Beibei Liu**, 2018, A&A, 615A, 178O

10. Catching drifting pebbles I. Enhanced pebble accretion efficiencies for eccentric planets

Beibei Liu, Chris W. Ormel, 2018, A&A, 615A, 138L

11. Dynamical rearrangement of super-Earths during disk dispersal. II. Assessment of the magnetospheric rebound model for planet formation scenarios

Beibei Liu and Chris W. Ormel, 2017, A&A, 606A, 66L

12. Formation of TRAPPIST-1 and other compact systems

Chris W. Ormel, **Beibei Liu**, and Djoeke Schoonenberg 2017, A&A, 604A, 1O

13. Dynamical rearrangement of super-Earths during disk dispersal. I. Outline of the magnetospheric rebound model earths

Beibei Liu, Chris W. Ormel, and Douglas N.C. Lin, 2017, A&A, 601A,15L

14. Migration and growth of protoplanetary embryos III: stellar mass and metallicity dependence

Beibei Liu, Xiaojia Zhang and Douglas N.C. Lin, 2016, ApJ, 823,162L

15. Migration and growth of protoplanetary embryos II: emergence of proto-gas-giants's cores versus super-Earths'progenitor

Beibei Liu, Xiaojia Zhang, Douglas N.C. Lin and Sverre J. Aarseth, 2015, ApJ, 798,62L

16. Migration and growth of protoplanetary embryos I: convergence of embryos in protoplanetary disks

Xiaojia Zhang, **Beibei Liu**, Douglas N.C. Lin and Hui Li, 2014, ApJ, 797,20Z

17. Atmospheric circulation of hot Jupiters: insensitivity to initial conditions

Beibei Liu and Adam P. Showman, 2013, ApJ, 770, 42L