Ryosuke Hirai

Curriculum Vitae

Personal Information

Name	Ryosuke Hirai (平井 遼介)
Nationality	Japanese
Gender	Male
Date of Birth	12th August, 1989
Email	ryosuke.hirai@physics.ox.ac.uk
Address	12 Stratfield Road, Oxford, OX2 7BQ, United Kingdom

Research Interests

2012– Binary stars and supernovae

2015– Efficient numerical schemes for difference equations

2018– Stellar mergers and Eta Carinae

Education

2014–2017 **Doctor of Science**, *Waseda University*, Advanced Research Institute of Science and Engineering.

2012–2014 **Master of Science**, *Waseda University*, Advanced Research Institute of Science and Engineering.

2008–2012 **Bachelor of Engineering**, *Waseda University*, School of Advanced Science and Engineering.

Research Experience

2017.11– **JSPS Overseas Research Fellow**, *at Department of Physics*, University of Oxford.

2017.4–10 **JSPS Research Fellow (PD)**, *at Advanced Research Institute of Science and Engineering*, Waseda University.

2016–2017 **JSPS Research Fellow (DC2)**, *at Advanced Research Institute of Science and Engineering*, Waseda University.

Grants

2018 **Hayakawa Satio Fund, Astronomical Society of Japan**, *∼210000 JPY*.

2016–2017 **JSPS Research Fellow (DC2), Fellowship + Grant**, *1200000+1100000 JPY*.

2015 **Research Grant for Young Scientists, Early Bird Program from Waseda Research Institute for Science and Engineering**, *400000 JPY*.

Languages

Japanese **Mothertongue**

English **Fluent** *Spent 8.5 years of childhood in England*

Publications

First Author

[6] **Comprehensive study of ejecta-companion interaction for core-collapse supernovae in massive binaries**
Ryosuke Hirai, Philipp Podsiadlowski, Shoichi Yamada
The Astrophysical Journal, Volume 864, Issue 2, article id. 119, 17 pp. (2018)

[5] **The Origin of the Possible Massive Black Hole in the Progenitor System of iPTF13bvn**
Ryosuke Hirai
Monthly Notices of the Royal Astronomical Society: Letters, Volume 469, Issue 1, p.L94-L98 (2017)

[4] **Formation Scenario of the Progenitor of iPTF13bvn Revisited**
Ryosuke Hirai
Monthly Notices of the Royal Astronomical Society, Volume 466, Issue 4, p.3775-3783 (2017)

[3] **Hyperbolic Self-Gravity Solver for Large Scale Hydrodynamical Simulations**
Ryosuke Hirai, Hiroki Nagakura, Hirotada Okawa, Kotaro Fujisawa
Physical Review D, Volume 93, Issue 8, article id.083006 (2016)

[2] **Possible Signatures of Ejecta-Companion Interaction in iPTF 13bvn**
Ryosuke Hirai, Shoichi Yamada
The Astrophysical Journal, Volume 805, Issue 2, article id. 170, 7 pp. (2015)

[1] **The Outcome of Supernovae in Massive Binaries; Removed Mass, and its Separation Dependence**
Ryosuke Hirai, Hidetomo Sawai, Shoichi Yamada
The Astrophysical Journal, Volume 792, Issue 1, article id. 66, 15 pp. (2014)

Co-Author

[3] **Hydrodynamical simulations and similarity relations for eruptive mass loss from massive stars**
Stanley P. Owocki, Ryosuke Hirai, Philipp Podsiadlowski, Fabian R. N. Schneider
Monthly Notices of the Royal Astronomical Society, Volume 485, Issue 1, p.988-1000 (2019)

[2] **The W4 method: a new multi-dimensional root-finding scheme for nonlinear systems of equations**
Hirotada Okawa, Kotaro Fujisawa, Yu Yamamoto, Ryosuke Hirai, Nobutoshi Yasutake, Hiroki Nagakura, Shoichi Yamada
submitted to Journal of Computational and Applied Mathematics, arXiv:1809.04495

[1] **Formation pathway of Population III coalescing binary black holes through stable mass transfer**
Kohei Inayoshi, Ryosuke Hirai, Tomoya Kinugawa, Kenta Hotokezaka
Monthly Notices of the Royal Astronomical Society, Volume 468, Issue 4, p.5020-5032 (2017)

Other Articles

[1] 水素欠乏超新星の親星の起源**(The Origin of the Progenitors of Stripped-Envelope Supernovae)**
平井 遼介 (Ryosuke Hirai)
天文月報*(The Astronomical Herald)*, Volume 111, Issue 9, p.580-588 (2018)