

Carl Rodriguez | Publication List

MIT, 37-664L – 77 Massachusetts Ave – Cambridge, MA, 02139

📞 318.469.1779 • ✉ carlrodr@mit.edu • 🌐 bhdynamics.com

A complete list of publications can also be found at the NASA ADS service [here](#).

First Author Papers (with links)

- Post-Newtonian Dynamics in Dense Star Clusters: Formation, Masses, and Merger Rates of Highly-Eccentric Black Hole Mergers** **PRD**
2018
C. L. Rodriguez, P. Amaro-Seoane, S. Chatterjee, K. Kremer, F. Rasio, J. Samsing, S. Ye, M. Zevin;
Phys. Rev. D (in press)
- Redshift Evolution of the Black Hole Merger Rate From Globular Clusters** **ApJL**
2018
C. L. Rodriguez, A. Loeb; ApJL, **865**, L5
- A Triple Origin for the Heavy and Low-Spin Binary Black Holes Detected by LIGO/Virgo** **ApJ**
2018
C. L. Rodriguez, F. Antonini; ApJ, **863**, 1, 7
- A New Hybrid Technique for Modeling Dense Star Clusters** **CompAC**
2018
C. L. Rodriguez, B. Pattabiraman, S. Chatterjee, M. Morscher, F. Rasio, A. Choudhary, W-K. Liao;
Computational Astrophysics and Cosmology, **5**, 1
- Post-Newtonian Dynamics in Dense Star Clusters: Highly-Eccentric, Highly-Spinning, and Repeated Binary Black Hole Mergers** **PRL**
2018
C. L. Rodriguez, P. Amaro-Seoane, S. Chatterjee, F. Rasio; Phys. Rev. Lett, **120**, 151101
- Articles in *Boston Globe*, *MIT News* (Links),
- Illuminating Black Hole Binary Formation Channels with Spins in Advanced LIGO** **ApJL**
2016
C. L. Rodriguez, M. Zevin, C. Pankow, V. Kalogera, F. Rasio; ApJL, **832**, L2
- Dynamical Formation of the GW150914 Binary Black Hole** **ApJL**
2016
C. L. Rodriguez, C.-J. Haster, S. Chatterjee, V. Kalogera, F. Rasio; ApJL, **824**, L8
- Articles in *New Scientist*, *Sky News* (Links),
- Synopsis in *Astrobites* (Link)
- Binary Black Hole Mergers from Globular Clusters: Masses, Merger Rates, and the Impact of Stellar Evolution** **PRD**
2016
C. L. Rodriguez, S. Chatterjee, F. Rasio; Phys. Rev. D, **93**, 084029
- Million-Body Star Cluster Simulations: Comparisons between Monte Carlo and Direct N-body** **MNRAS**
2016
C. L. Rodriguez, M. Morscher, L. Wang, S. Chatterjee, F. Rasio, R. Spurzem; MNRAS **463**, 2109
- Binary Black Hole Mergers from Globular Clusters: Implications for Advanced LIGO** **PRL**
2015
C. L. Rodriguez, M. Morscher, B. Pattabiraman, S. Chatterjee, C.J. Haster, and F. Rasio; Phys. Rev. Lett. **115**, 051101
- Synopsis by APS in *Physics* (Link)
- Synopsis in popular science blog *IFLS* (Link)

- Basic Parameter Estimation of Binary Neutron Star Systems by the Advanced LIGO/Virgo Network** **ApJ**
2014
C. L. Rodriguez, B. Farr, V. Raymond, W. Farr, T. Littenberg, D. Fazi, V. Kalogera; ApJ, **785**, 2, 119
- Inadequacies of the Fisher Information Matrix in gravitational-wave parameter estimation** **PRD**
2013
C. L. Rodriguez, B. Farr, W. Farr, I. Mandel; Phys. Rev. D, **88**, 8, 084013
- Verifying the no-hair property of massive compact objects with intermediate-mass-ratio inspirals in advanced gravitational-wave detectors** **PRD**
2012
C. L. Rodriguez, I. Mandel, J. Gair; Phys. Rev. D, **85**, 6, 062002
 - Synopsis in *Astrobites* (Link)

Second Author Papers (with links)

- Post-Newtonian Dynamics in Dense Star Clusters: Binary Black Holes in the LISA Band** 2018
K. Kremer, C. L. Rodriguez, P. Amaro-Seoane, K. Breivik, S. Chatterjee, M. Katz, S. Larson, F. Rasio, J. Samsing, S. Ye, M. Zevin; Phys. Rev. D (submitted)
- Precessional Dynamics of Black Hole Triples: Binary Mergers with near-zero Effective Spin** **MNRASL**
2018
F. Antonini, C. L. Rodriguez, C. Petrovich, C. Fischer; MNRAS Letters, **480**, 1, L58
- Binary Black Holes in Dense Star Clusters: Exploring the Theoretical Uncertainties** **ApJ**
2017
S. Chatterjee, C. L. Rodriguez, F. Rasio; ApJ, **834**, 1, 68
- Dynamical Formation of Low-mass Merging Black Hole Binaries like GW151226** **ApJL**
2017
S. Chatterjee, C. L. Rodriguez, V. Kalogera, F. Rasio; ApJL, **836**, L26
- Distinguishing Between Formation Channels for Binary Black Holes with LISA** **ApJL**
2016
K. Breivik, C. L. Rodriguez, S. Larson, V. Kalogera, F. Rasio; ApJL, **830**, L18

Contributing Author (with links)

- Eccentric Black Hole Mergers in Dense Star Clusters: The Role of Binary-Binary Encounters** **ApJ**
2018
M. Zevin, J. Samsing, C. L. Rodriguez, C. Haster, E. Ramirez-Ruiz;
 ApJ (in press)
- Predicting Stellar-mass Black Hole Populations in Globular Clusters** **ApJ**
2018
N. Weatherford, S. Chatterjee, C. L. Rodriguez, F. Rasio;
 ApJ, **864**, 13
- How initial size governs core collapse in globular clusters** **ApJ**
2018
K. Kremer, S. Chatterjee, C. Ye, C. L. Rodriguez, F. Rasio;
 ApJ (in press)
- LISA Sources in Milky Way Globular Clusters** **PRL**
2018
K. Kremer, S. Chatterjee, K. Breivik, C. L. Rodriguez, S. Larson, F. Rasio;
 PRL, **120**, 19
- How Black Holes Shape Globular Clusters: Modeling NGC 3201** **ApJL**
2018
K. Kremer, C. Ye, S. Chatterjee, C. L. Rodriguez, F. Rasio;
 ApJL, **855**, 15
- Low-mass X-ray binaries ejected from globular clusters** 2018
K. Kremer, S. Chatterjee, C. L. Rodriguez, F. Rasio;
 ApJ (submitted)

Accreting Black Hole Binaries in Globular Clusters <i>K. Kremer, S. Chatterjee, C. L. Rodriguez, F. Rasio;</i> ApJ, 852 , 29	ApJ 2017
Constraining Models of Binary Black Hole Formation with Gravitational-Wave Observations <i>M. Zevin, C. Pankow, C. L. Rodriguez, L. Sampson, E. Chase, V. Kalogera, F. Rasio;</i> ApJ, 846 , 82Z	ApJ 2017
Black Hole Mergers and Blue Stragglers from Hierarchical Triples Formed in Globular Clusters <i>F. Antonini, S. Chatterjee, C. L. Rodriguez, M. Morscher, B. Pattabiraman, V. Kalogera, F. Rasio;</i> ApJ, 816 , 2, 65	ApJ 2016
The Dynamical Evolution of Stellar Black Holes in Globular Clusters <i>M. Morscher, B. Pattabiraman, C. L. Rodriguez, F. Rasio, S. Umbreit;</i> ApJ, 800 , 1, 21	ApJ 2015
Parameter Estimation for Compact Binaries with Ground-based Gravitational-wave Observations Using the LALInference Software Library <i>J. Veitch, V. Raymond, B. Farr, W. Farr, P. Graff, S. Vitale, B. Aylott, K. Blackburn, N. Christensen, M. Coughlin, W. Del Pozzo, F. Feroz, J. Gair, C.J. Haster, V. Kalogera, T. Littenberg, I. Mandel, R. O'Shaughnessy, M. Pitkin, C. L. Rodriguez, C. Röver, T. Sidery, R. Smith, M. Van Der Sluys, A. Vecchio, W. Voudsen, L. Wade;</i> Phys. Rev. D, 91 , 4, 042003	PRD 2015
Comparison of Gravitational Wave Detector Network Sky Localization Approximations <i>K. Grover, S. Fairhurst, B. Farr, I. Mandel, C. L. Rodriguez, T. Sidery, A. Vecchio;</i> Phys. Rev. D, 89 , 4, 042004	PRD 2014
Estimating parameters of coalescing compact binaries with proposed advanced detector networks <i>J. Veitch, I. Mandel, B. Aylott, B. Farr, V. Raymond, C. L. Rodriguez, M. van der Sluys, V. Kalogera, A. Vecchio;</i> Phys. Rev. D 85 , 104045	PRD 2012
Mock data challenge for the Einstein Gravitational-Wave Telescope <i>T. Regimbau, T. Dent, W. Del Pozzo, S. Giampanis, T.G.F. Li, C. Robinson, C. Van Den Broeck, D. Meacher, C. L. Rodriguez, B.S. Sathyaprakash, K. Wójcik;</i> Phys. Rev. D 86 , 122001	PRD 2012
Lateral alignment of InGaAs quantum dots as function of spacer thickness <i>Z. Wang, C. L. Rodriguez, S. Seydmohamadi, Y. I. Mazur, G. Salamo;</i> Appl. Phys. Lett. 94 , 083107	APL 2009
Controlling fluorescence intermittency of a single colloidal CdSe/ZnS quantum dot in a half cavity <i>Y. Zhang, V. Komarala, C. L. Rodriguez, M. Xiao;</i> Phys. Rev. B 78 , 241301(R)	PRB 2008

Collaboration Papers

Coauthor on 23 Collaboration Papers as a Member of the LIGO Scientific Collaboration

[Click Here for Full List of Citations](#)

2011-2015

- Characterization of the LIGO detectors during their sixth science run
- Searching for stochastic gravitational waves using data from the two colocated LIGO Hanford detectors
- Constraints on Cosmic Strings from the LIGO-Virgo Gravitational-Wave Detectors
- Application of a Hough search for continuous gravitational waves on data from the fifth LIGO science run
- Gravitational Waves from Known Pulsars: Results from the Initial Detector Era
- First Searches for Optical Counterparts to Gravitational-wave Candidate Events
- Search for long-lived gravitational-wave transients coincident with long gamma-ray bursts
- Directed search for continuous gravitational waves from the Galactic center

- Parameter estimation for compact binary coalescence signals with the first generation gravitational-wave detector network
- A first search for coincident gravitational waves and high energy neutrinos using LIGO, Virgo and ANTARES data from 2007
- Einstein@Home all-sky search for periodic gravitational waves in LIGO S5 data
- Search for gravitational waves from binary black hole inspiral, merger, and ringdown in LIGO-Virgo data from 2009-2010
- Swift Follow-up Observations of Candidate Gravitational-wave Transient Events
- Search for Gravitational Waves Associated with Gamma-Ray Bursts during LIGO Science Run 6 and Virgo Science Runs 2 and 3
- The characterization of Virgo data and its impact on gravitational-wave searches
- All-sky search for gravitational-wave bursts in the second joint LIGO-Virgo run
- Upper limits on a stochastic gravitational-wave background using LIGO and Virgo interferometers at 600-1000 Hz
- Search for gravitational waves from intermediate mass binary black holes
- First low-latency LIGO+Virgo search for binary inspirals and their electromagnetic counterparts
- Search for gravitational waves from low mass compact binary coalescence in LIGO's sixth science run and Virgo's science runs 2 and 3
- Implementation and testing of the first prompt search for gravitational wave transients with electromagnetic counterparts
- All-sky search for periodic gravitational waves in the full S5 LIGO data
- A gravitational wave observatory operating beyond the quantum shot-noise limit