

# Carl Rodriguez | Publication List

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

## First Author Papers (with links)

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- Black Holes: The Next Generation – Repeated Mergers in Dense Star Clusters and their Gravitational-Wave Properties** PRD  
2019  
*C. L. Rodriguez, M. Zevin, P. Amaro-Seoane, S. Chatterjee, K. Kremer, F. Rasio, S. Ye;*  
Phys. Rev. D, **100**, 043027
- 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, **98**, 123005
- Redshift Evolution of the Black Hole Merger Rate From Globular Clusters** ApJL  
2018  
*C. L. Rodriguez, A. Loeb;*  
Astrophys. J. Lett., **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;*  
Astrophys. J., **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
- Illuminating Black Hole Binary Formation Channels with Spins in Advanced LIGO** ApJL  
2016  
*C. L. Rodriguez, M. Zevin, C. Pankow, V. Kalogera, F. Rasio;*  
Astrophys. J. Lett., **832**, L2
- Dynamical Formation of the GW150914 Binary Black Hole** ApJL  
2016  
*C. L. Rodriguez, C.-J. Haster, S. Chatterjee, V. Kalogera, F. Rasio;*  
Astrophys. J. Lett., **824**, L8
- 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;*  
Mon. Not. R. Astron. Soc., **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

- 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;*  
 Astrophys. J., **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

## Second Author Papers (with links)

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- Relativistic Three-body Effects in Hierarchical Triples** 2020  
*H. Lim, C. L. Rodriguez;*  
 Phys. Rev. D (submitted)
- Post-Newtonian Dynamics in Dense Star Clusters: Binary Black Holes in the LISA Band** PRD  
2019  
*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 , **99**, 063003
- Precessional Dynamics of Black Hole Triples: Binary Mergers with near-zero Effective Spin** MNRASL  
2018  
*F. Antonini, C. L. Rodriguez, C. Petrovich, C. Fischer;*  
 Mon. Not. R. Astron. Soc. Lett., **480**, 1, L58
- Binary Black Holes in Dense Star Clusters: Exploring the Theoretical Uncertainties** ApJ  
2017  
*S. Chatterjee, C. L. Rodriguez, F. Rasio;*  
 Astrophys. J., **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;*  
 Astrophys. J. Lett., **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;*  
 Astrophys. J. .Lett, **830**, L18

## Contributing Author (with links)

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- Measuring the Star Formation Rate with Gravitational Waves from Binary Black Holes** ApJL  
2018  
*S. Vitale, W. Farr, K. Ng, C. L. Rodriguez;*  
 Astrophys. J. Lett., **886**, 1
- On the Rate of Neutron Star Binary Mergers from Globular Clusters** ApJL  
2020  
*C. Ye, W.-F. Fong, K. Kremer, C. L. Rodriguez, S. Chatterjee, G. Fragione, F. Rasio;*  
 Astrophys. J. Lett., **888**, 10
- Gravitational-wave Captures of Single Black Holes in Globular Clusters** 2019  
*J. Samsing, D. D'Orazio, K. Kremer, C. L. Rodriguez, A, Askar;*  
 Phys. Rev. D. (submitted)
- COSMIC Variance in Binary Population Synthesis** 2019  
*K. Breivik, S. Coughlin, M. Zevin, C. L. Rodriguez, K. Kremer, C. Ye, J. Andrews, M. Kurkowski, M. Digman, S. Larson, F. Rasio;*  
 Astrophys. J. (submitted)

**Millisecond Pulsars and Black Holes in Globular Clusters** **ApJ**  
2019  
C. Ye, K. Kremer, S. Chatterjee, *C. L. Rodriguez*, F. Rasio;  
Astrophys. J., **877**, 122

**The fate of binaries in the Galactic Center: The Mundane and the Exotic** **ApJ**  
2019  
S. Alexander, S. Naoz, A. Ghez, M. Morris, A. Ciurlo, T. Do, K. Breivik, S. Coughlin, *C. L. Rodriguez*;  
Astrophys. J., **878**, 58S

**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;  
Astrophys. J., **871**, 1

**Predicting Stellar-mass Black Hole Populations in Globular Clusters** **ApJ**  
2018  
N. Weatherford, S. Chatterjee, *C. L. Rodriguez*, F. Rasio;  
Astrophys. J., **864**, 13

**How initial size governs core collapse in globular clusters** **ApJ**  
2018  
K. Kremer, S. Chatterjee, C. Ye, *C. L. Rodriguez*, F. Rasio;  
Astrophys. J., **871**, 38

**LISA Sources in Milky Way Globular Clusters** **PRL**  
2018  
K. Kremer, S. Chatterjee, K. Breivik, *C. L. Rodriguez*, S. Larson, F. Rasio;  
Phys. Rev. Lett., **120**, 19

**How Black Holes Shape Globular Clusters: Modeling NGC 3201** **ApJL**  
2018  
K. Kremer, C. Ye, S. Chatterjee, *C. L. Rodriguez*, F. Rasio;  
Astrophys. J. Lett., **855**, 15

**Low-mass X-ray binaries ejected from globular clusters** 2018  
K. Kremer, S. Chatterjee, *C. L. Rodriguez*, F. Rasio;  
Astrophys. J. (submitted)

**Accreting Black Hole Binaries in Globular Clusters** **ApJ**  
2017  
K. Kremer, S. Chatterjee, *C. L. Rodriguez*, F. Rasio;  
Astrophys. J., **852**, 29

**Constraining Models of Binary Black Hole Formation with Gravitational-Wave Observations** **ApJ**  
2017  
M. Zevin, C. Pankow, *C. L. Rodriguez*, L. Sampson, E. Chase, V. Kalogera, F. Rasio;  
Astrophys. J., **846**, 82Z

**Black Hole Mergers and Blue Stragglers from Hierarchical Triples Formed in Globular Clusters** **ApJ**  
2016  
F. Antonini, S. Chatterjee, *C. L. Rodriguez*, M. Morscher, B. Pattabiraman, V. Kalogera, F. Rasio;  
Astrophys. J., **816**, 2, 65

**The Dynamical Evolution of Stellar Black Holes in Globular Clusters** **ApJ**  
2015  
M. Morscher, B. Pattabiraman, *C. L. Rodriguez*, F. Rasio, S. Umbreit;  
Astrophys. J., **800**, 1, 21

**Parameter Estimation for Compact Binaries with Ground-based Gravitational-wave Observations Using the LALInference Software Library** **PRD**  
2015  
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. Vousden, L. Wade;  
Phys. Rev. D, **91**, 4, 042003

- Comparison of Gravitational Wave Detector Network Sky Localization Approximations** PRD  
2014  
*K. Grover, S. Fairhurst, B. Farr, I. Mandel, C. L. Rodriguez, T. Sidery, A. Vecchio;*  
 Phys. Rev. D, **89**, 4, 042004
- Estimating parameters of coalescing compact binaries with proposed advanced detector networks** PRD  
2012  
*J. Veitch, I. Mandel, B. Aylott, B. Farr, V. Raymond, C. L. Rodriguez, M. van der Sluys, V. Kalogera, A. Vecchio;*  
 Phys. Rev. D **85**, 104045
- Mock data challenge for the Einstein Gravitational-Wave Telescope** PRD  
2012  
*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;*  
 Phys. Rev. D **86**, 122001
- Lateral alignment of InGaAs quantum dots as function of spacer thickness** APL  
2009  
*Z. Wang, C. L. Rodriguez, S. Seydmohamadi, Y. I. Mazur, G. Salamo;*  
 Appl. Phys. Lett. **94**, 083107
- Controlling fluorescence intermittency of a single colloidal CdSe/ZnS quantum dot in a half cavity** PRB  
2008  
*Y. Zhang, V. Komarala, C. L. Rodriguez, M. Xiao;*  
 Phys. Rev. B **78**, 241301(R)

## Collaboration Papers

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### 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