

Carl Rodriguez | Publication List

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First Author Papers (with links)

- Post-Newtonian Dynamics in Dense Star Clusters: Formation, Masses, and Merger Rates of Highly-Eccentric Black Hole Mergers** 2018
C. L. Rodriguez, P. Amaro-Seoane, S. Chatterjee, K. Kremer, F. Rasio, S. Ye, M. Zevin;
Phys. Rev. D (submitted)
- 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** 2018
C. L. Rodriguez, B. Pattabiraman, S. Chatterjee, M. Morscher, F. Rasio, A. Choudhary, W-K. Liao; CompAC (submitted)
- 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 *Astrobit*es (Link)

Second Author Papers (with links)

- 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
- 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
- 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

Contributing Author (with links)

- Accreting Black Hole Binaries in Globular Clusters** **ApJ**
2017
K. Kremer, S. Chatterjee, C. L. Rodriguez, F. Rasio; ApJ, **852**, 29
- 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, 191103
- How black holes shape globular clusters: Modeling NGC 3201** **ApJL**
2018
K. Kremer, C. Ye, S. Chatterjee, C. L. Rodriguez, F. Rasio; ApJL, **855**, 2, L15
- Accreting Black Hole Binaries in Globular Clusters** **ApJ**
2017
K. Kremer, S. Chatterjee, C. L. Rodriguez, F. Rasio; ApJ, (accepted)
- 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; ApJ, **846**, 82Z

Black Hole Mergers and Blue Stragglers from Hierarchical Triples Formed in Globular Clusters	ApJ 2016
<i>F. Antonini, S. Chatterjee, C. L. Rodriguez, M. Morscher, B. Pattabiraman, V. Kalogera, F. Rasio; ApJ, 816, 2, 65</i>	
The Dynamical Evolution of Stellar Black Holes in Globular Clusters	ApJ 2015
<i>M. Morscher, B. Pattabiraman, C. L. Rodriguez, F. Rasio, S. Umbreit; ApJ, 800, 1, 21</i>	
Parameter Estimation for Compact Binaries with Ground-based Gravitational-wave Observations Using the LALInference Software Library	PRD 2015
<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. Vousden, L. Wade; Phys. Rev. D, 91, 4, 042003</i>	
Comparison of Gravitational Wave Detector Network Sky Localization Approximations	PRD 2014
<i>K. Grover, S. Fairhurst, B. Farr, I. Mandel, C. L. Rodriguez, T. Sidery, A. Vecchio; Phys. Rev. D, 89, 4, 042004</i>	
Estimating parameters of coalescing compact binaries with proposed advanced detector networks	PRD 2012
<i>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</i>	
Mock data challenge for the Einstein Gravitational-Wave Telescope	PRD 2012
<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; Phys. Rev. D 86, 122001</i>	
Lateral alignment of InGaAs quantum dots as function of spacer thickness	APL 2009
<i>Z. Wang, C. L. Rodriguez, S. Seydmohamadi, Y. I. Mazur, G. Salamo; Appl. Phys. Lett. 94, 083107</i>	
Controlling fluorescence intermittency of a single colloidal CdSe/ZnS quantum dot in a half cavity	PRB 2008
<i>Y. Zhang, V. Komarala, C. L. Rodriguez, M. Xiao; Phys. Rev. B 78, 241301(R)</i>	

Collaboration Papers

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

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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