

Malik Rakhmanov

Department of Physics, University of Texas Rio Grande Valley,
1 W University Blvd., Brownsville, TX 78520
Phone: (956) 882-6746, Lab: (956) 882-6534
E-mail: malik.rakhmanov@utrgv.edu

(a) Professional Preparation

Moscow State University	Moscow, Russia	Physics	B.S. 1989
California Institute of Technology	Pasadena, California	Physics	Ph.D. 2000
University of Florida (postdoc)	Gainesville, Florida	Optics	2000-2001
Glasgow University (postdoc)	Glasgow, Scotland	Optics	2001-2003

(b) Appointments

University of Texas Rio Grande Valley	Associate Professor	2015-present
University of Texas at Brownsville	Associate Professor	2014-2015
University of Texas at Brownsville	Assistant Professor	2008-2014
California Institute of Technology	Visiting Research Associate	2005-2007
Pennsylvania State University	Research Associate	2005-2007
University of Florida at Gainesville	Research Associate	2003-2005

(c) Publications (total 100+)

Publications related to the proposed project:

1. "GW151226: Observation of gravitational waves from a 22-solar-mass binary black hole coalescence," B.P. Abbott et al., *Physical Review Letters*, vol. 116, p. 241103, (2016)
2. "Observation of gravitational waves from a binary black hole merger," B.P. Abbott et al., *Physical Review Letters*, vol. 116, p. 061102, (2016)
3. "High precision optical cavity length and width measurements using double modulation," A. Staley, D. Hoak, A. Effler, K. Izumi, S. Dwyer, K. Kawabe, E. King, M. Rakhmanov, R. Savage, and D. Sigg, *Optics Express*, vol. 23, p. 19417, (2015)
4. "Enhanced sensitivity of the LIGO gravitational wave detector by using squeezed states of light," J. Aasi, *Nature Photonics*, vol. 7, p. 613, (2013)
5. "Sub-wavelength diffraction losses in a silicon nano-patterned membrane reflector," M. Rakhmanov et al., published in *Photonics Conference (IPC), 2012 IEEE*, page 925, (2012)

Other significant publications:

1. "Fermi-normal, optical, and wave-synchronous coordinates in spacetime with a plane gravitational wave," M. Rakhmanov, *Classical and Quantum Gravity*, vol. 31, p. 085006, (2014)
2. "LIGO: The Laser Interferometer Gravitational-Wave Observatory," B. Abbott et al., *Report on Progress in Physics*, vol. 72, p. 076901, (2009)
3. "High-frequency corrections to the detector response and their effect on searches for gravitational waves," M. Rakhmanov, J.D. Romano, and J.T. Whelan, *Classical and Quantum Gravity*, vol. 25, p. 184017, (2008)
4. "Rank deficiency and Tikhonov regularization in the inverse problem for gravitational-wave bursts," M. Rakhmanov, *Classical and Quantum Gravity*, vol. 23, p. S673, (2006)

5. “Characterization of the LIGO 4-km Fabry-Perot cavities via their high-frequency dynamic responses to length and laser frequency variations,” M. Rakhmanov, F. Bondu, O. Debieu, and R.L. Savage, *Classical and Quantum Gravity*, vol. 21, p. S487, (2004)

(d) Synergistic Activities

- Reviewer for *Physical Review Letters*, *Physical Review D*, *Journal of Mathematical Physics*, *International Journal of Modern Physics*, *Astroparticle Journal*, *Classical and Quantum Gravity*, *Optics Letters*, *Applied Optics*, *Journal of Optical Society of America*, *Optics Express*
- Member of the LIGO Scientific Collaboration (LSC)
- New Course Development:
 - PHYS-4390 Computational Methods for Engineers and Physicists (UG course, 2008)
 - PHYS-6364 Nanophotonics: materials and devices (graduate course, 2011)
- Chair of the Physics Graduate Committee, UTRGV (since 2017)
- Laser Safety Officer for the University of Texas at Brownsville (2011—2015)

(e) Collaborators & Other Affiliations

Collaborators and Co-Editors:

J. Robinson, Department of Electrical and Computer Engineering, Rice University
 A. Zakhidov, MacDiarmid NanoTech Inst., University of Texas at Dallas
 W. Zhou, UTA NanoFab, University of Texas at Arlington
 V. Quetschke, University of Texas Rio Grande Valley
 J.D. Romano, University of Texas Rio Grande Valley
 R. Savage, CALTECH and LIGO Hanford Observatory, Richland, WA

Graduate Advisors and Postdoctoral Sponsors:

J.H. Schwarz	graduate advisor	California Institute of Technology
B.C. Barish	graduate advisor	California Institute of Technology
D.B. Tanner	postdoc. sponsor	University of Florida at Gainesville
D.H. Reitze	postdoc. sponsor	University of Florida at Gainesville

Thesis Advisor and Postgraduate-scholar Sponsor:

Alan Farrell	MS in Physics, 2010	University of Texas at Brownsville
Travis Miller	MS in Physics, 2012	University of Texas at Brownsville
Darkhan Tuyenbaev	MS in Physics, 2013	University of Texas at Brownsville
Anton Gribovskiy	MS in Physics, 2014	University of Texas at Brownsville
Artem Bogdanovskiy	MS in Physics, 2014	University of Texas at Brownsville
Liliana Ruiz-Diaz	MS in Physics, 2014	University of Texas at Brownsville

Total number of graduate students advised: 6.