

Omar A. Ashour

✉ ashour@berkeley.edu
🌐 www.omarashour.com
⌚ oashour

Education

- 2019 – **Ph.D., Physics.**
University of California, Berkeley
Advisor: Sinéad Griffin
- 2019 – 2020 **MA, Physics.**
University of California, Berkeley
- 2017 – 2019 **MS, Applied Physics (AS&T).**
University of California, Berkeley
Thesis: The Nonlinear Schrödinger Hierarchy: from Quasi Rogue Waves to Nonlinear Talbot Carpets
- 2013 – 2017 **BS, Electrical Engineering (Optics).**
Texas A&M University, College Station, TX
GPA: 4.0/4.0
Thesis: Maximal Intensity Higher-Order Breathers of the Nonlinear Schrödinger Equation on Different Backgrounds

Publications

- * These authors contributed equally
† Corresponding author
- 2022 **Omar A. Ashour**[†], Siu A. Chin, Stanko N. Nikolić, and Milivoj R. Belić. Higher-order breathers as quasi-rogue waves on a periodic background. *Nonlinear Dynamics*, Jan 2022.
- 2022 Stanko N. Nikolić, Sarah Alwashahi, **Omar A. Ashour**, Siu A. Chin, Najdan B. Aleksić, and Milivoj R. Belić. Multi-elliptic rogue wave clusters of the nonlinear schrödinger equation on different backgrounds. *Nonlinear Dynamics*, Jan 2022.
- 2022 Thais Chagas*, **Omar A. Ashour***, Guilherme Ribeiro, Wendell Silva, Zhenglu Li, Rogério Magalhães-Paniago, Yves Petroff, and Steven G. Louie. Multiple strong topological gaps and hexagonal warping in Bi_4Te_3 . *Accepted, Physical Review B*, 2022.
- 2022 Milivoj R. Belić, Stanko N. Nikolić, **Omar A. Ashour**, and Najdan B. Aleksić. On different aspects of the optical rogue waves nature. *Nonlinear Dynamics*, volume 108, pages 1655–1670, 2022.
- 2021 **Omar A. Ashour**[†]. Nonlinear Schrödinger: Higher-order algorithms and Darboux transformations for nonlinear Schrödinger equations. *arXiv*, page arXiv:2103.14469, 2021.
- 2019 Stanko N. Nikolić, **Omar A. Ashour**, Najdan B. Aleksić, Yiqi Zhang, Milivoj R. Belić, and Siu A. Chin. Talbot carpets by rogue waves of extended nonlinear schrödinger equations. *Nonlinear Dynamics*, volume 97, pages 1215–1225, 2019.

- 2019 Stanko N. Nikolić, **Omar A. Ashour**, Najdan B. Aleksić, Milivoj R. Belić, and Siu A. Chin. breathers, solitons and rogue waves of the quintic nonlinear schrödinger equation on various backgrounds. *Nonlinear Dynamics*, volume 95, pages 2855–2865, 2019.
- 2017 Stanko N. Nikolić, Najdan B. Aleksić, **Omar A. Ashour**, Milivoj R. Belić, and Siu A. Chin. Systematic generation of higher-order solitons and breathers of the hirota equation on different backgrounds. *Nonlinear Dynamics*, volume 89, pages 1637–1649, 2017.
- 2017 Runze Li, **Omar A. Ashour**, Jie Chen, H. E. Elsayed-Ali, and Peter M. Rentzepis. Femtosecond laser induced structural dynamics and melting of cu (111) single crystal. an ultrafast time-resolved x-ray diffraction study. *Journal of Applied Physics*, volume 121, page 055102, 2017.
- 2017 Siu A. Chin, **Omar A. Ashour**, Stanko N. Nikolic, and Milivoj R. Belic. Peak-height formula for higher-order breathers of the nonlinear schrodinger equation on non-uniform backgrounds. *Physical Review E*, volume 95, page 012211, 2017.
- 2016 Siu A. Chin, **Omar A. Ashour**, Stanko N. Nikolic, and Milivoj R. Belic. Maximal intensity higher-order akhmediev breathers of the nonlinear schrödinger equation and their systematic generation. *Physics Letters A*, volume 380, pages 3625–3629, 2016.
- 2015 Siu A. Chin, **Omar A. Ashour**, and Milivoj R. Belic. Anatomy of the akhmediev breather: Cascading instability, first formation time, and fermi-pasta-ulam recurrence. *Physical Review E*, volume 92, page 063202, 2015.

Research Experience

- 2021 – **Molecular Foundry, Lawrence Berkeley National Lab**, Berkeley, CA.
PI: Sinéad Griffin
- 2019 – 2021 **Physics Department, UC Berkeley**, Berkeley, CA.
PI: Steven G. Louie
- 2017 – 2018 **NSF Nanoscale Science & Engineering Center, UC Berkeley**, Berkeley, CA.
PI: Xiang Zhang
- 2016 – 2017 **Texas A&M Engineering Experiment Station (TEES)**, College Station, TX.
PI: Peter Rentzepis
- 2015 **Institute of Electronic Structure and Laser (IESL-FORTH)**, Heraklion, Greece.
PI: Stelios Tzortzakis
- 2014 – 2017 **Department of Physics and Astronomy, Texas A&M University**, College Station, TX.
PI: Siu A. Chin, Milivoj R. Belić

Fellowships & Awards

- 2018 – 2019 **Anselmo J. Macchi Graduate Fellowship**, UC Berkeley
- 2017 – 2019 **Berkeley Graduate Fellowship**, UC Berkeley
- 2016 **Richard E. Ewing Award for excellence in student research**, Texas A&M University