

# Omar A. Ashour

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## Education

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### UC Berkeley

*PhD, Applied Physics*

**Berkeley, CA**

May 2022

- **GPA:** 3.96/4.0
- **Honors:** Berkeley Graduate Fellow, Ansillmo J. Macchi Fellow

### Texas A&M University

*B.S., Electrical Engineering (Optics), Summa Cum Laude*

**College Station, TX**

May 2017

- **GPA:** 4.0/4.0
- **Thesis:** Maximal Intensity Higher-Order Breathers of the Nonlinear Schrödinger Equation on Different Backgrounds [\[Link\]](#)
- **Advisors:** Siu A. Chin, Milivoj R. Belić
- **Minors:** Mathematics, Physics
- **Honors:** HKN, TBII, ΦΚΦ, Dean's Honor Roll (8 times), Undergraduate Research Scholar

## Journal Articles

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### Published.....

- S. Nikolić, N. Aleksić, **O. Ashour**, M. R. Belić, and S. A. Chin, “Systematic generation of higher-order solitons and breathers of the Hirota equation on different backgrounds”, *Nonlinear Dynamics* **1-13** (2017). [\[Link\]](#)
- R. Li, **O. Ashour**, J. Chen, H.E. Elsayed-Ali, P. 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*, **121**, 6 (2017). [\[Link\]](#)
- S. Chin, **O. Ashour**, S. Nikolić, M. Belić, “Peak-height formula for higher-order breathers of the nonlinear Schrödinger equation on non-uniform backgrounds,” *Phys. Rev. E.*, **95**, 012211 (2016) [\[Link\]](#)
- S. Chin, **O. Ashour**, S. Nikolić, and M. Belić, “Maximal intensity higher-order Akhmediev breathers of the nonlinear Schrödinger equation and their systematic generation”, *Phys. Let. A* **380**, 43 (2016). [\[Link\]](#)
- S. Chin, **O. Ashour**, and M. Belić, “Anatomy of the Akhmediev breather: cascading instability, first formation time and Fermi-Pasta-Ulam recurrence,” *Phys. Rev. E* **92**, 063202 (2015). [\[Link\]](#)

### In Progress.....

- S. Nikolić, **O. Ashour**, N. Aleksić, S. Chin, M. Belić, “Breathers, solitons and rogue waves of the quintic nonlinear Schrödinger equation on various backgrounds” (under review).
- **O. Ashour**, S. Nikolić, S. Chin, M. Belić, “Maximal Intensity Higher Order Breathers of the Nonlinear Schrödinger Equation on Elliptic Background,” (preparing for submission).
- **O. Ashour**, “Schrödinger’s Lab: a numerical suite for the nonlinear Schrödinger equation,” (preparing for submission).
- **O. Ashour**, S. Chin, S. Nikolić, M. Belić, “Systematic Generation of Nonlinear Talbot Carpets of Breathers” (in progress).

## Experience

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### Research

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**Physics Department, Texas A&M University** **College Station, TX**  
*Research Assistant*, PIs: Milivoj Belić, Siu Chin. Jan 2014 – May 2017

- Numerical and analytical studies of breathers of the nonlinear Schrödinger equation.

**Texas A&M Engineering Experiment Station** **College Station, TX**  
*Research Assistant*, PI: Peter Rentzepis Jan 2016 – May 2017

- Numerical and experimental studies of ultrafast dynamics in metal thin films.

**Institute of Electronic Structure and Laser (IESL-FORTH)** **Heraklion, Greece**  
*Research Assistant*, PI: Stelios Tzortzakis May – July 2015

- Femtosecond machining of complex waveguide arrays.

### Teaching

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**Science Program, Texas A&M University (Qatar Campus)** **Doha, Qatar**  
*Teaching Assistant*, Supervisor: Dr. Milivoj Belić May 2014 – Dec 2015

- PHYS-218 (mechanics) and PHYS-208 (Electricity, magnetism and optics).

**Qatar Robotics Institute for Development (QRID)** **Doha, Qatar**  
*Junior Robotics Trainer* May – Nov 2014

- Robotics, electronics and embedded programming.

## Honors and Awards

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**Ansillmo J. Macchi Graduate Fellowship**  
UC Berkeley 2018-2019

**Berkeley Graduate Fellowship**  
UC Berkeley 2017-2019

**Cornell Graduate Fellowship (Declined)**  
Cornell University 2017-2018

**Undergraduate Research Scholar**  
LAUNCH, Undergraduate Research, Texas A&M University 2017

**Outstanding Graduate, Class of 2017**  
Science Program, Texas A&M (Qatar Campus, as a funded research student) 2017

**Gathright Scholar Award for Exceptional Academic Performance**  
The Association of Former Students – Texas A&M University 2015, 2017

**Richard E. Ewing Award for Excellence in Student Research**  
Texas A&M University 2016

**Takreem Award for Best Student Research**  
Qatar Foundation for Education, Science and Community Development 2016

**Student Employee of the Year (shared, for TAing)**  
Texas A&M University 2015

**QF Merit Scholarship**  
Qatar Foundation for Education, Science and Community Development 2014-2017

## Community Service

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- **Be A Scientist mentor:** Worked with students at King Middle School for six weeks to design and conduct experiments, foster critical thinking skills, and expose the students to scientists from diverse backgrounds.
- **DSP note taker:** Volunteer note taker for disabled students.