

Highlights

- **Publications (28):** 23 published (6 Journals & 17 full conference papers), 5 under preparation.
- **Computational Physics background:** All my research projects have been conducted through computational approaches using my home-made codes written in Fortran and C++.
- **Data Science background:** I have been learning scientific Python, R and Machine Learning algorithms from my co-author, Mostafa (mostafa-mr.com), a Data Science PhD candidate. Mostafa has been my co-author on all my publications. You can find Mostafa's recommendation on my behalf on my LinkedIn profile and at the end of my CV.

Education

- PhD in Physics | 2022 – present | University of New Hampshire, NH, USA.
- MSc in Physics | 2010 – 2013 | Shahid Chamran University of Ahvaz, Iran.
- BSc in Physics | 2005 – 2009 | Payame Noor University, Abadeh Branch, Iran.

Professional experience

- 2019 – 2022: Research Assistance, Department of Physics, Shahid Chamran University of Ahvaz, Khuzestan, Iran.
 - My research work during these recent years has resulted in several papers, one of which has been submitted in 2021, the others will be submitted in 2023.
- 2015 – 2020: University Lecturer, Islamic Azad University, Ghaderabad, Iran.
 - BSc Level Courses: Fundamental of Physics (I & II), Electromagnetism (I & II).
- 2014 – 2020: Teaching Physics for Universities Entrance Exams Applicants (BSc & MSc).
 - BSc level courses: Fundamental of Physics (I & II), Electromagnetism (I & II).
 - High school level courses: Physics (Grades 10 & 11 & 12).
- 2013 – 2016: Research Assistance, Department of Physics, Shahid Chamran University of Ahvaz, Khuzestan, Iran.
 - I was working on some papers that were published in 2014 - 2016.

Published journal articles

1. M. Mohammad Rezaee, M. Sabaeian (supervisor), **A. Motazedian**, and F. S. Jalil-Abadi, "A depleted and numerical model for pulsed Gaussian wave type II second harmonic generation," arXiv preprint arXiv:2112.13422 (2021).
2. M. Sabaeian (supervisor), **A. Motazedian**, M. Mohammad Rezaee, and F. Sedaghat Jalil-Abadi, "Bessel-Gauss beams: pulsed Bessel-Gauss beams: a depleted wave model for type II second harmonic generation," **Applied Optics** 53, 7691–7696 (2014).
3. M. Mohammad Rezaee, M. Sabaeian (supervisor), **A. Motazedian**, F. Sedaghat Jalil-Abadi, H. Askari, and I. Khazrak, "Thermally induced phase mismatching in a repetitively Gaussian pulsed pumping KTP crystal: a spatiotemporal treatment," **Applied Optics** 54, 4781-4788 (2015).
4. M. Mohammad Rezaee, M. Sabaeian (supervisor), **A. Motazedian**, F. Sedaghat Jalil-Abadi, and A. Khaledi-Nasab, "Complete anisotropic time-dependent heat equation in KTP crystal under repetitively pulsed Gaussian beams: A numerical approach," **Applied Optics** 54, 1241–1249 (2015).
5. M. Sabaeian (supervisor), F. Sedaghat Jalil-Abadi, M. Mohammad Rezaee, and **A. Motazedian**, "Heat coupled Gaussian continuous-wave double-pass type-II second harmonic generation: inclusion of thermally induced phase mismatching and thermal lensing," **Optics Express** 22, 25615–25628 (2014).
6. M. Sabaeian (supervisor), F. Sedaghat Jalil-Abadi, M. Mohammad Rezaee, **A. Motazedian**, and M. Shahzadeh, "Temperature increase effects on a double-pass cavity type II second harmonic generation: a model for depleted Gaussian continuous waves," **Applied Optics** 54, 869–875 (2015).
7. M. Sabaeian (supervisor), F. Sedaghat Jalil-Abadi, M. Mohammad Rezaee, **A. Motazedian**, and M. Shahzadeh, "Temperature Distribution in a Gaussian End-Pumped Nonlinear KTP Crystal: The Temperature Dependence of Thermal Conductivity and Radiation Boundary Condition," **Brazilian Journal of Physics**, 0103-9733 (2015)

Under preparation journal articles

1. **A. Motazedian**, M. Sabaeian (supervisor), M. Mohammad Rezaee, and F. Sedaghat Jalil-Abadi, "Investigation of efficiency and field profile of Bessel-Gauss beams in pulsed second harmonic generation under thermal effects".
2. M. Mohammad Rezaee, M. Sabaeian (supervisor), **A. Motazedian**, and F. Sedaghat Jalil-Abadi, "Heat coupled type II long-pulse second harmonic generation: a model for inclusion of thermal phase mismatching and thermal lensing".
3. M. Mohammad Rezaee, M. Sabaeian (supervisor), **A. Motazedian**, and F. Sedaghat Jalil-Abadi, "The efficiency changes of pulsed Gaussian second harmonic generation in KTP crystal: investigating the influences of pulse energy, laser spot size, cooling temperature by emphasizing the interaction length scale".
4. M. Mohammad Rezaee, M. Sabaeian (supervisor), **A. Motazedian**, and F. Sedaghat Jalil-Abadi, "Heat-pulsed second harmonic generation coupling: Reduction in RAM and run-time using algorithm optimization and parallel computing".

Published Conference paper

I have published 17 full conference papers in national and international conferences.

Skills

- Data Science and Scientific Programming:
Machine learning
FORTRAN, C++, MATLAB, Python (Pandas, Scikit-Learn) and R.
Acquainted with High Performance Computing (HPC).
- Mathematical Knowledge:
Computational modeling and analysis, Probability theory.

References and LinkedIn Recommendations

My Mentor and co-author | since 2010 | Ali Khaledi, Ph.D., Research Scientist, **Amazon Web Service (AWS)**, San Francisco Bay Area, USA.

Email: Alinsb@amazon.com, Tel: +1 (740) 331-1349, Personal website: alikhaleedi.com

My co-author on 28 publications | since 2010 | Mostafa MR, Data Science Ph.D. candidate, Bowling Green State University, OH, USA.

Email: mostam@bgsu.edu, Tel: +1 (419) 315-7481, Personal website: mostafa-mr.com

Mostafa's LinkedIn Recommendation:

Alireza and I have co-authored 28 publications since 2010. Working with Alireza is both enjoyable and fruitful. As a researcher, he is very thorough, hardworking, and reliable. His teamwork spirit is unique and I always look forward to doing more together. Recently, I've been teaching Alireza Python and machine learning algorithms. Our goal is to collaborate on some deep-learning projects in the near future.

PhD in Physics & Data Scientist | since 2020 | Hamid Shojaei, Ph.D., Senior Data Scientist consultant at Excelacom, USA.

Email: hshojaei@exclacom.com, Tel: +1 (413) 695 0460

Hamid's LinkedIn Recommendation:

Over the past two years, Alireza has sought my guidance on machine learning several times. He has in-depth knowledge and skill in mathematics and programming, and it is easy to recognize his eagerness to learn and his skill in coding and mathematics. He has a solid research background and scientific analysis, and I look forward to collaborating with him on future projects.