Gaurang Parkar

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Education

2019 - 2024 **PhD, Physics, University of Stavanger**
Thesis project: *In medium static quark anti-quark potential from lattice QCD.*

2017 – 2019 **Graduate program in Physics, Stony Brook University, New York**
Research projects: *Tensor Network methods in quantum information theory.*

2015 – 2017 **M.Sc. Physics, San Francisco State University** .
Thesis title: *Bound on Chaos in 2d CFT's.*

2010 – 2014 **B.Tech. Chemical Engineering,National Institute of Technology, Tiruchirappalli, India**.

Employment History and Projects

2019 - 2024 **Research Fellow University of Stavanger**: Tasks involved running large scale high performance Monte-Carlo simulations to explore properties of quantum fields which are used in modeling of heavy-ion collisions at CERN and Brookhaven (USA). Worked on an inverse problem to extract real-time properties from Lattice QCD data.

2017 - 2019 **Stony Brook University** Worked on using tensor network methods to analyze properties of quantum critical spin chains using the framework of conformal field theory (CFT) using the Julia programming language. Also worked on protein folding problem in biological physics.

2018 - 2019 **Teaching Assistant** Stony Brook University: Taught introductory mechanics and electromagnetism lab courses.

2015 - 2017 **Teaching Assistant** San Francisco State University : Taught introductory mechanics and electromagnetism lab courses.

2014 **Trainee intern, farm equipment sector** Mahindra and Mahindra Limited.Kandivali Mumbai: Worked on engine assembly plant for tractors.

Research Publications

You can find the latest list of publications on **Inspire**.

Journal Articles/Conference Proceedings

1. R. N. Larsen, G. Parkar, A. Rothkopf, and J. H. Weber, "In-medium static inter-quark potential on high resolution quenched lattices," *Phys. Rev. D*, vol. 110, no. 11, p. 114 501, 2024. DOI: 10.1103/PhysRevD.110.114501. arXiv: 2402.10819 [hep-lat].
2. G. Parkar, O. Kaczmarek, R. Larsen, *et al.*, "Complex potential at T > 0 from fine lattices," *PoS*, vol. LATTICE2022, p. 188, 2023. DOI: 10.22323/1.430.0188.
3. D. Bala, O. Kaczmarek, R. Larsen, *et al.*, "Static quark-antiquark interactions at nonzero temperature from lattice QCD," *Phys. Rev. D*, vol. 105, no. 5, p. 054 513, 2022. DOI: 10.1103/PhysRevD.105.054513. arXiv: 2110.11659 [hep-lat].

4 D. Bala, O. Kaczmarek, R. Larsen, *et al.*, "The complex potential from 2+1 flavor QCD using HTL inspired approach," *PoS*, vol. LATTICE2021, p. 199, 2022. DOI: 10.22323/1.396.0199. arXiv: 2112.00664 [hep-lat].

5 D. Hoying, A. Bazavov, D. Bala, *et al.*, "Static potential at non-zero temperatures from fine lattices," *PoS*, vol. LATTICE2021, p. 178, 2022. DOI: 10.22323/1.396.0178. arXiv: 2110.00565 [hep-lat].

6 G. Parkar, D. Bala, O. Kaczmarek, *et al.*, "In-medium static quark potential from spectral functions on realistic HISQ ensembles," *PoS*, vol. LATTICE2021, p. 239, 2022. DOI: 10.22323/1.396.0239. arXiv: 2111.15437 [hep-lat].

7 G. Parkar, D. Bala, O. Kaczmarek, *et al.*, "Static quark anti-quark interactions at non-zero temperature from lattice QCD," *EPJ Web Conf.*, vol. 274, p. 04 006, 2022. DOI: 10.1051/epjconf/202227404006. arXiv: 2211.12937 [hep-lat].

8 Z. Ahmed, D. Ghosh, J. A. Nathan, and G. Parkar, "Accidental crossings of eigenvalues in the one-dimensional complex PT-symmetric Scarf-II potential," *Phys. Lett. A*, vol. 379, no. 39, pp. 2424–2429, 2015. DOI: 10.1016/j.physleta.2015.06.024. arXiv: 1503.02426 [quant-ph].

Skills

Languages	Strong reading, writing and speaking competencies for English, speaking competencies for Hindi and Marathi, limited proficiency in Norwegian (A2).
Software	Julia, Python, C/C++, LaTeX, Wolfram Mathematica, GNU/Linux, MacOS

List of Talks at major conferences

- **Complex potential at T>0 from fine lattices**. The 39th International Symposium on Lattice Field Theory, August 8-13 2022, Bonn, Germany
- **Static quark anti-quark interactions at non-zero temperature from lattice QCD** , XVth Quark Confinement and the Hadron Spectrum, August 1-6 2022, University of Stavanger
- **In-medium static quark potential from spectral functions on realistic HISQ ensembles** , The 38th International Symposium on Lattice Field Theory, July 26-30 2021, @MIT via zoom

Other Interests

Sports	I like to mostly do outdoor sports which mainly include rock climbing followed by surfing in the ocean and mountain biking. I occasionally go on hikes, ski and play tennis.
Music	I am very passionate about music of various genres ranging from Indian classical music to experimental electronic music to heavy metal and indie rock. I play several musical instruments: mainly guitar but also drums, piano, flute, bass, synths, etc. I am somewhat interested in contemporary dance.
Books & film	I am interested in reading continental philosophy (Deleuze, Foucault, and Luhmann, to name a few) and economics. I also enjoy watching old classic films and independent films from all over the world.

References

Available on Request