

# Navdeep Singh Dhindsa

🌐 [navdeep-dhindsa.github.io](https://navdeep-dhindsa.github.io)

111 New Building, The Institute of Mathematical Sciences  
Chennai, Tamil Nadu 600113, India

📞 +91 8699804461 • ✉ [navdeep.s.dhindsa@gmail.com](mailto:navdeep.s.dhindsa@gmail.com) • **in** Navdeep Dhindsa  
📠 live:.cid.d2a0f4b48f08f0e3 • 🌐 Navdeep-Dhindsa • 📞 0000-0002-3133-6979

## Employment

---

◆ **The Institute of Mathematical Sciences (IMSc), Chennai**  
Tamil Nadu, India

**Post Doctoral Fellow**  
August 2023 - Present

## Academic Qualifications

---

◆ **Indian Institute of Science Education and Research (IISER), Mohali**  
Punjab, India

**PhD, Physics**  
January 2019 - June 2023

◆ **Punjabi University, Patiala**  
Punjab, India

**M.Sc., Physics**  
August 2016 - August 2018

## Publications/Conference Proceedings

---

- ◆ Non-perturbative phase structure of the bosonic BMN matrix model  
**Navdeep Singh Dhindsa**, Raghav G. Jha, Anosh Joseph, Abhishek Samlodia and David Schaich  
*Journal of High Energy Physics* **05**, (2022) 169 (2022) [[arXiv:2201.08791](https://arxiv.org/abs/2201.08791) [*hep-lat*]]  
Data Release: [doi.org/10.5281/zenodo.6462433](https://doi.org/10.5281/zenodo.6462433)
- ◆ Large- $N$  limit of two-dimensional Yang–Mills theory with four supercharges  
**Navdeep Singh Dhindsa**, Raghav G. Jha, Anosh Joseph and David Schaich  
*Proceedings of Science LATTICE2021*, 433 (2022) [[arXiv:2109.01001](https://arxiv.org/abs/2109.01001) [*hep-lat*]]
- ◆ Probing Non-perturbative Supersymmetry Breaking through Lattice Path Integrals  
**Navdeep Singh Dhindsa** and Anosh Joseph  
*European Physical Journal Plus* **137**, 1155 (2022) [[arXiv:2011.08109](https://arxiv.org/abs/2011.08109) [*hep-lat*]]

## Preprints

---

- ◆ Deconfinement transition in two-dimensional  $SU(N)$  Yang–Mills theory with four supercharges  
**Navdeep Singh Dhindsa**, Raghav G. Jha, Anosh Joseph, and David Schaich  
*Under Preparation* (Expected in 2023)
- ◆ Deconfinement Phase Transition in Bosonic BMN Model at General Coupling  
**Navdeep Singh Dhindsa**, Anosh Joseph, Abhishek Samlodia and David Schaich  
*To Publish in Springer Nature Proceedings* (2023) [[arXiv:2308.02538](https://arxiv.org/abs/2308.02538) [*hep-lat*]]

## Talks Delivered

---

- ◆ Holography from Large Matrices on Lattice and Beyond (October 30, 2023) at [University of the Witwatersrand](#), South Africa
- ◆ Large Matrices on Lattice and Holography (March 30, 2023) at [IMSc Chennai](#), India
- ◆ Non-perturbative Studies of Non-conformal Field Theories (March 20, 2023) thesis defense talk at [IISER Mohali](#), India

- ◆ Large Matrices and Holography (January 24, 2023) review talk at [IISER Mohali](#), India
- ◆ (ONLINE) Supersymmetric Theories on Lattice and Holography (November 23, 2022) seminar at [APCTP Pohang](#), Korea
- ◆ (ONLINE) Non-perturbative study of Yang-Mills theory with four supercharges in two dimensions (August 08, 2022) at [39th International Symposium on Lattice Field Theory \(LATTICE2022\)](#), 8th-13th August 2022, hosted by [University of Bonn](#), Germany
- ◆ Non-perturbative phase structure of the bosonic BMN matrix model (January 21, 2022) review talk at [IISER Mohali](#), India
- ◆ (ONLINE) Non-perturbative study of two-dimensional Yang-Mills with four supercharges at Large  $N$  (July 31, 2021) at (*Virtual*) [Shivalik HEPCATS Meeting Summer 2021](#), hosted by [IIT Ropar](#), India
- ◆ (ONLINE) Large- $N$  limit of two-dimensional Yang-Mills theory with four supercharges (July 29, 2021) at [38th International Symposium on Lattice Field Theory \(LATTICE2021\)](#), 26th-30th July 2021, Zoom/Gather @Massachusetts Institute of Technology, USA
- ◆ (ONLINE) Field Theory Matrix Models on Lattice: A Proem (January 30, 2021) at (*Virtual*) [Shivalik HEPCATS Meeting Winter 2020](#), hosted by [IISER Mohali](#), India
- ◆ (ONLINE) Probing Non-perturbative Supersymmetry Breaking through Lattice Path Integrals (November 26, 2020) at [THEP Journal Club](#), [IISER Mohali](#), India
- ◆ (ONLINE) Supersymmetric Quantum Mechanics on Lattice using Hamiltonian Monte Carlo (July 31, 2020) at (*Virtual*) [Shivalik HEPCATS Meeting Summer 2020](#), hosted by [IISER Mohali](#), India

## Poster Presented

---

- ◆ Deconfinement phase transition in bosonic BMN model at general coupling (December 15, 2022) at [XXV DAE-BRNS HEP Symposium](#), 12th-16th December 2022, hosted by [IISER Mohali](#), India

## Conferences/Workshops Attended

---

- ◆ 13th Joburg Theoretical Physics School, University of the Witwatersrand, South Africa (October 23 - October 27, 2023)
- ◆ Observables in Quantum Gravity, [IISER Mohali](#), India (March 23 - March 25, 2023)
- ◆ XXV DAE-BRNS HEP Symposium, [IISER Mohali](#), India (December 12 - December 16, 2022)
- ◆ Nonperturbative and Numerical Approaches to Quantum Gravity, String Theory, and Holography, ICTS-TIFR, India (August 22 - September 02, 2022)
- ◆ (*Virtual*) 39th International Symposium on Lattice Field Theory (LATTICE2022), University of Bonn, Germany (August 8 - 13, 2022)
- ◆ Shivalik HEPCATS Meeting Winter 2021, [IISER Mohali](#), India (December 18, 2021)
- ◆ (*Virtual*) Lattice Practices 2021, The Cyprus Institute, Cyprus (October 6 - 12, 2021)
- ◆ (*Virtual*) Shivalik HEPCATS Meeting Summer 2021, [IIT Ropar](#), India (July 31 - August 01, 2021)
- ◆ (*Virtual*) 38th International Symposium on Lattice Field Theory (LATTICE2021), Massachusetts Institute of Technology, USA (July 26 - 30, 2021)
- ◆ (*Virtual*) Doctoral Training Programme 2021, ECT\*, Italy (June 28 - July 23, 2021)
- ◆ (*Virtual*) Shivalik HEPCATS Meeting Winter 2020, [IISER Mohali](#), India (January 30, 2021)
- ◆ (*Virtual*) Nonperturbative and Numerical Approaches to Quantum Gravity, String Theory, and Holography, ICTS-TIFR, India (January 18-21, 2021)
- ◆ (*Virtual*) Asia-Pacific Symposium for Lattice Field Theory (APLAT 2020), KEK Theory Center, Japan (August 04-07, 2020)

- ◆ (Virtual) Shivalik HEPCATS Meeting Summer 2020, IISER Mohali, India (July 30 - July 31, 2020)
- ◆ Shivalik HEPCATS Meeting Winter 2019, IISER Mohali, India (December 7, 2019)

## Fellowships

---

- ◆ **CSIR Senior Research Fellowship** **February 2021 - March 2023**  
Human Resource Development Group (HRDG),  
Council of Scientific & Industrial Research (CSIR), Government of India.
- ◆ **CSIR Junior Research Fellowship** **January 2019 - January 2021**  
Human Resource Development Group (HRDG),  
Council of Scientific & Industrial Research (CSIR), Government of India.

## Teaching Experience

---

- ◆ **PHY304, Statistical Mechanics** **IISER, Mohali**  
Grader January 2022 - April 2022
- ◆ **PHY635, Gravitation and Cosmology** **IISER, Mohali**  
Grader September 2021 - December 2021
- ◆ **PHY 112, Physics Laboratory II** **IISER, Mohali**  
Teaching Assistant May 2021 - July 2021
- ◆ **PHY304, Statistical Mechanics** **IISER, Mohali**  
Grader January 2021 - April 2021
- ◆ **PHY 112, Physics Laboratory II** **IISER, Mohali**  
Teaching Assistant January 2020 - March 2020

## Organizational Activities

---

- ◆ Student coordinator for **XXV DAE-BRNS HEP Symposium 2022** at IISER Mohali, India
- ◆ Co-organizer of **HEP Journal Club** in Spring 2022 semester at IISER Mohali, India
- ◆ Student coordinator for (Virtual) **Shivalik HEPCATS Meeting Winter 2021**, IISER Mohali, India
- ◆ Co-organized (Virtual) **MPI Workshop** from April 26, 2021 to April 29, 2021 at IISER Mohali, India
- ◆ Student coordinator for (Virtual) **Shivalik HEPCATS Meeting Summer 2020** and (Virtual) **Shivalik HEPCATS Meeting Winter 2020** hosted at IISER Mohali, India
- ◆ Organizer of **Lattice Journal Club** at IISER Mohali in Spring and Fall 2020 semesters and Spring 2021 Semester.

## Expertise

---

- ◆ **Technical:** C/C++/Fortran, LaTeX, Gnuplot, Matlab, MPI, Bash, Python.
- ◆ **Languages:** Punjabi, English, Hindi.

## Mentoring Experience

---

- ◆ I was a scholar mentor for various Summer interns and Masters thesis students in Lattice Field Theory group at IISER Mohali.

Last updated : November 3, 2023