Curriculum Vitae

June 7, 2020

- **Personal details:**
  - Name: Dr. Ankur Das
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  - Current Address: 300 Alumni Drive, Apartment 104, Lexington - 40503, Kentucky, USA
  - Permanent Address: 24/2/91, Mondal Para Lane, "Monihar", Flat No. 5, 2nd Floor, Kolkata - 700090, West Bengal, India
  - Skype Name: dasankur1990
  - Nationality: Indian
  - My Webpage: https://pa.as.uky.edu/users/ada258.
- **Area of Interest:**

  Condensed Matter Theory, Quantum Hall effect, Topological Insulator, Quantum Magnets, Renormalization Group
- **Educational Qualification:**
  - PhD, Condensed Matter Physics, University of Kentucky, Lexington (2020), Advisor: Dr. Ganpathy Murthy, Co-Advisor: Dr. Ribhu K. Kaul, Thesis: Graphene in a Uniform Magnetic Field
  - M.Sc.Physics, Harish-Chandra Research Institute (HRI), Allahabad (2015), 78.3% score
  - B.Sc. (Hons.) Physics, St. Xavier's College, Kolkata (2012), 78.8% score in Hons.
- **Fellowship in Israel:**
  - "Study in Israel" Fellowship for Outstanding Post-Doctoral Researchers from China and India, provided by the Planning & Budgeting Committee (PBC) of the Council for Higher Education (CHE) (Starting October 2020)
- **Current Fellowship:**
  - Department of Physics & Astronomy Fellowship (University of Kentucky) 2019-2020
- **Previous Fellowships and Awards:**
  - University of Kentucky Graduate Student Congress Travel Award (cycle 5 2019-2020)
  - University of Kentucky Student Goverment Association's Graduate Student Travel grant (June 2019, Dec 2019)
  - Huffaker Travel fellowship (March 2018, May 2018, October 2018, March 2019, June 2019, March 2020)
  - Department of Atomic Energy, India Junior Research Fellow 2012-2015
  - Inspire Scholarship For excellence in High-School (top 1% in India) 2009-2012

- **Graduate Courses:**
  - Core courses: Quantum Mechanics I & II, Classical Mechanics, Electromagnetism, Statistical Mechanics
  - Topical Courses: Quantum Field Theory I & II, Condensed Matter, General Relativity, Particle Physics, Condensed Matter Theory, Mathematical Physics
  - Other Courses: Computational Physics, Renormalization Group, Differential Geometry, Cosmology

- **Ongoing Research Projects:**
  - Interacting Graphene in uniform magnetic field with Ganpathy Murthy and Ribhu Kaul (manuscript in preparation)
  - Effective Field theory for $\nu = 3$ edge reconstruction with Ganpathy Murthy, Sumathi Rao, Yuval Gefen (ongoing)
  - Higher Order expansion in ϵ-expansion for $SU(N) \times U(1)$ theory with M bosons with Ganpathy Murthy (ongoing)
  - $\nu = 5/3$ fractional quantum Hall problem in bi-layered Graphene with Ganpathy Murthy, Sumathi Rao and Jainendra K Jain. (ongoing)
  - In the three band model how introduction of spin and spin orbit coupling to restore Chiral symmetry effects the Chern Bands with Sumiran Pujari. (ongoing)
  - Effect of magnetic field on a flat band with Sumiran Pujari. (ongoing)
  - Quantum Hall in Weyl semimetals with Ganpathy Murthy. (ongoing)

- **Previous Research Experience:**
  - Chern-Simons Field in 2+1 dim with fundamental Boson and fermions with Shiraz Minwalla
  - Higher order Onsagar relations in dissipative effective field theory with Anatoly Dymarsky

- **M.Sc. Project:**

  Conformal Field Theory and its application to string theory, Supervisor: Dr. Dileep Jatkar and Dr. Ashoke Sen

- **Talks:**
  1. Graphene in a uniform magnetic field, Physics Colloquium, Department of Physics and Astronomy, Western Kentucky University, April 27, 2020
  2. Non-interacting and interacting Graphene in a strong uniform magnetic field, APS March Meeting, Denver 2020 (virtual due to COVID-19)
  3. $SU(3)$ fermions in a three-band graphene-like model, APS March Meeting, Denver 2020 (virtual due to COVID-19)
  4. Graphene in a Uniform Magnetic Field, National High Magnetic Field Laboratory, October 29, 2019
  5. Graphene in a Uniform Magnetic Field, APS March Meeting, Boston 2019
  6. $SU(3)$ fermions in a three-band Graphene-like model, Harish-Chandra Research Institute, July 2019
  7. Phase Transition In $SU(N) \times U(1)$ Gauge Theory With Many Fundamental Bosons, APS March Meeting, L.A. 2018
  8. Quantum Hall effect in Graphene, Condensed Matter Seminar, Harish-Chandra Research Institute, August 2018

- **Poster Presentations:**
  1. Graphene in a Uniform Magnetic Field, Novel Phases of Quantum Matter, ICTS, Bangalore 2019
  2. Edge mode Bosonization for $\nu = 3$ edge modes is GaAs, Edge Dynamics In Topological Phases, ICTS, Bangalore 2019
  3. Phase Transition In $SU(N) \times U(1)$ Gauge Theory With Many Fundamental Bosons, The 2nd Asia Pacific Workshop on Quantum Magnetism, ICTS, Bangalore 2018
  4. Phase Transition In $SU(N) \times U(1)$ Gauge Theory with 'M' Fundamental Bosons, Summer School on Emergent Phenomena in Quantum Materials, Cornell university, 2018

- **Teaching Experience:**
  - Grader Quantum Mechanics I and II with Dr. Ganpathy Murthy and Dr. Michele Eides respective years (2017-2018)
  - Grader Classical Mechanics with Dr. Lance Delong (2017-2018)
  - Recitation Lecture Mechanics with Dr. Niclolas Martin (2018)
  - Grader Electrodynamics II with Dr. Michele Eides (2017)
  - Introductory Astronomy online course TA with Dr. Ron Wilhelm (summer 2017)
  - Grader for Basic Mechanics Class with Dr. Kwok-Wai Ng (summer 2016)
  - Basic Mechanics Lab with Dr. Maxwell Brown (2015-2016)

- **Other Skills:**
  - Languages: Bengali (mother tongue), English (fluent), Hindi (fluent)
  - Software: Mathematica, LaTeX
  - Programing: C++, C, python, Fortran

List of Publications

1. Ankur Das and Sumiran Pujari, *On the topological character of three-dimensional Nexus triple point degeneracies*, arXiv: 2006.00709
2. Ankur Das, Ribhu K. Kaul and Ganpathy Murthy, *Stability of zero energy Dirac touchings in the honeycomb Hofstadter problem*, Phys. Rev. B 101, 165416 (2020)
3. Ankur Das and Sumiran Pujari, *$SU(3)$ fermions in a three-band Graphene-like model*, Phys. Rev. B 100, 125152 (2019)
4. Ankur Das, *Phase Transition In $SU(N) \times U(1)$ Gauge Theory with Many Fundamental Bosons*, Phys. Rev. B 97, 214429 (2018)