

## Curriculum Vitae

<b>Full Name</b>	Dr. Sunil Kumar		
<b>Designation</b>	Assistant Professor		
<b>Department</b>	Physics		
<b>Campus</b>	Srinagar		
<b>Telephone</b>			
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<b>Email</b>	<a href="mailto:physunil@gmail.com">physunil@gmail.com</a>		
<b>Education Qualification</b>	PhD (2017): Indian Institute of Science Education and Research Pune (IISER PUNE)		
<b>Education Qualification</b>	Research Fellow: Centre of Quantum Technologies (CQT) National University of Singapore (NUS) PhD (2017): Indian Institute of Science Education and Research Pune (IISER Pune ) M.Sc (2010): Indian institute of Technology, Bombay (IITB)		
<b>Teaching Experience</b>	1.5 Years	<b>Research Experience</b>	13 Years
<b>Areas of Interest/ Specialization</b>			
<ul style="list-style-type: none"> <li>• Bose-Einstein Condensation of neutral atoms</li> <li>• Physics with cold quantum gases</li> <li>• Quantum information processing using ultra cold atoms</li> <li>• Atom-plasmon coupling and nano-photonics</li> <li>• Plasmonics and nanophotonics</li> <li>• Ultracold polar molecules</li> <li>• Two-photon spectroscopy</li> <li>• Ultracold Rydberg atoms</li> </ul>			
<b>Honours &amp; Awards</b>			
<ul style="list-style-type: none"> <li>• <i>Junior Research Fellowship (JRF)</i> (Aug 2010 - Aug 2012) awarded by Council of Scientific and Industrial Research (CSIR), Government of India.</li> <li>• <i>Senior Research Fellowship (SRF)</i> (Aug 2012 - Aug 2016) awarded by Council of Scientific and Industrial Research (CSIR), Government of India.</li> <li>• Qualified GATE 2010 .</li> <li>• Qualified JEST 2010.</li> </ul>			
<b>Member of Academic Institutions:</b> Nil			

<b>Membership of Scientific Organization:</b> Nil
<b>Research Supervision (No. of Ph.D. Degree Awarded/ Registered):</b> Nil
<b>Research Projects/ MoU undertaken</b> NA
<p><b>Administrative Experience</b></p> <ol style="list-style-type: none"> <li>1) Nodal officer of <b>IQAC</b> from department of Physics, HNB Garhwal University (2023-24).</li> <li>2) Organising secretary for science week festival 2023 at B.G.R . Campus Pauri.</li> <li>3) Member of <b>pre incubation committee</b> at HNB Garhwal University</li> <li>4) Member of the <b>purchase committees</b> of department of Physics, HNB Garhwal University (2023-24).</li> <li>5) Member of the organising committee and coordinator/secretary of various sub-committees: <b>Science week Festival</b>, HNB Garhwal University Srinagar, February 28-March 04 (2023).</li> <li>6) Member of “<b>General Physics lecture series</b>” held online during November (2022)-April (2023).</li> <li>7) Member of the admission committee for BSc. I<sup>st</sup> Sem (2022-23, 2023-24) and for M.Sc. I<sup>st</sup> Sem (2022-23, 2023-24).</li> </ol>
<b>Scientific Visits Abroad/International Collaboration</b> NIL
<p><b>Conference/Symposium/Workshop Attended during last five years (2017-2022).</b></p> <p><b>International</b></p> <ul style="list-style-type: none"> <li>• Presented talk titled ‘<b>Ground state spectroscopy of ultracold dipolar <math>{}^6\text{Li}^{40}\text{K}</math> molecules</b>’ at <b>IPS meeting 2019 “IPS 2019, Institute of physics Singapore” SUTD Singapore, 13-15 March 2019</b> Organized jointly by <b>CQT, NTU, SUTD.</b></li> <li>• <b>Presented poster titled ‘Ground state spectroscopy of ultracold dipolar <math>{}^6\text{Li}^{40}\text{K}</math> molecules’ at “EGAS 50, 50th Anniversary EGAS conference” Krakow, Poland, 9-13, July 2018. Organized jointly by The European Group on Atomic Systems and Jagiellonian University</b></li> <li>• <b>IPS meeting 2018 “IPS 2018, Institute of physics Singapore” NTU Singapore, 7-9 March 2018, Organized jointly by CQT, NTU, SUTD.</b></li> </ul> <p><b>National</b></p> <ol style="list-style-type: none"> <li>1. <b>Attended One-day Workshop on Intellectual Property Rights (IPR), HNB Garhwal University, 30<sup>th</sup> September 2022.</b></li> </ol>
<b>Conference/Symposium/Workshop Organized during last five years (2017-2022)</b> NA

## Research Publications 2017 onwards

### Journals

1. Field-programmable-gate-array-based digital frequency stabilization of low-phase-noise diode lasers , Victor Avalos, Xiaoyu Nie, Anbang Yang, Canming He, **Sunil Kumar**, Kai Dieckmann, *Rev. Sci. Instrum.* **94**, 063001 (2023)
2. Empirical LiK excited state potentials: connecting short range and near dissociation expansions. Botsi Sofia, Anbang Yang, Mark M. Lam, Sambit B. Pal, **Sunil Kumar**, Markus Debatin, and Kai Dieckmann, *Phys. Chem. Chem. Phys.* **24**, 3933 (2022).
3. Singlet pathway to the ground state of ultracold polar molecules; Anbang Yang, Sofia Botsi, **Sunil Kumar**, Sambit B. Pal, Mark M. Lam, Ieva Čepaitė, Andrew Laugharn, Kai Dieckmann, *Phys. Rev. Lett.* **124**, 133202 (2020).
4. Design, Fabrication and Characterization of nanoplasmonic lattice for trapping of ultracold atoms; **Sunil Kumar**, Manav Shah, Ajith P. Ravishankar, Arindam Dasgupta, Chetan Vishwakarma, Jay Mangaonkar, Venu Gopal Achanta, Umakant D. Rapol, **Manuscript under review**
5. Non-exponential decoherence and sub diffusion in atom-optics kicked rotor; Sumit Sarkar, Sanku Paul, Chetan Vishwakarma, Sunil Kumar, Gunjan Verma, M. Sainath, Umakant D. Rapol, M. S. Santhanam, *Phys. Rev. Lett.* **118**, 174101 (2017)
6. Bose-Einstein condensation in an electro-pneumatically transformed quadrupole-Ioffe magnetic trap; **Sunil Kumar**, Sumit Sarkar, Gunjan Verma, Chetan Vishwakarma, Md Noaman, and Umakant Rapol, *New.J.Phys.* **17**,023062 (2015).

### Proceedings

1. A. Yang, X. Nie, V. A. Avalos Pinillos, C. He, **S. Kumar**, S. Botsi, and K. Dieckmann, "Low Phase-Noise High-Power Diode Laser Systems for the STIRAP Transfer of Ultracold  $^6\text{Li}^{40}\text{K}$  Molecules," in Quantum 2.0 Conference and Exhibition, Technical Digest Series (Optica Publishing Group, 2022).
2. Yang, A., Botsi, S., **Kumar, S.**, Pal, S. B., Lam M., Čepaitė, I, Dieckmann, K. (2020). Singlet pathway to the ground state of ultracold polar molecules. Proc. Of the 7th Asian Spectroscopy Conference (ASC 2020). doi:10.32655/ASC\_8-10\_Dec2020.28.
3. Botsi, S., Yang, A., **Kumar, S.**, Pal, S. B., Lam, M., & Dieckmann, K. (2020). LiK B1Π potential: combining short and long-range data. Proc. Of the 7th Asian Spectroscopy Conference (ASC 2020). doi:10.32655/ASC\_8-10\_Dec2020.49.

**Total Number of Research Publications: 9**

**Total Citation (as per the Google Scholar 2024): 64**

**h-index: 3**

**i10 index: 2**