Brief Biodata

Name: Dr. Jiji T J Pulikkotil

Designation:	Senior Principal Scientist	
DP No. and Name:	05 ; Quantum Hall Resistance Metrology & 2D physics	
DU No. and Name:	02 ; Electrical & Electronics Metrology	
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Date of Joining CSIR-NPL:	20-March 2012	
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Research Area/ Interest

Multi-scale materials design and modelling using first principles electronic structure calculations.

Educational Qualifications

(Please write latest qualification first)

Degree	**Subject**	**University/ Institute**	**Year**
Ph.D	Physics	Indian Institute of Technology, Bombay	2005
M. Sc.	Physics	Pondicherry Central University	1997
B. Sc.	Physics	University of Calicut	1995

Academic / Research Experience

Grade / Post	**Institute**	**Duration**		**Research Field**
		From	**To**	
Post Doctoral Fellow	Ames Laboratory, US Department of Energy, Iowa	2005	2009	Theoretical and computational Physics
Post Doctoral Fellow	King Abdullah University of Science & Technology, Jeddah	2009	2010	Theoretical and computational Physics
Quick Hire Fellow	National Physical Laboratory, New Delhi	2010	2012	Theoretical and computational Physics
Principal Scientist	National Physical Laboratory, New Delhi	2012	2016	Theoretical and computational Physics
Senior Principal Scientist	National Physical Laboratory, New Delhi	2016	-	Theoretical and computational Physics

No. of Publications

No. of Publications in SCI Journals	No. of Publications in non-SCI Journals	No. of Publications in Conference Proceedings	Books	Total
66	3	2	3	74

Selected Publications

Propensity of spin fluctuations in disordered NiCoCr alloys: A first principles study, J J Pulikkotil, J. Alloys Compounds 864, 158817 (2021)

Emergence of quasi-two-dimensional electron gas at the interface of $LaAlO_3/Sr_2AlNbO_6(001)$ heterostructures J J Pulikkotil, J. Appl. Phys. 127, 225303 (2020)

A spin–orbit coupling-induced two-dimensional electron gas in BiAlO 3/SrTiO 3 heterostructures J J Pulikkotil, Phys. Chem. Chem. Phys. 22, 3122 (2020)

Coexistence of quasi-two dimensional electron and hole gas in a single tier $Ca_{0.5}TaO_3/SrTiO_3$ oxide heterostructure J J Pulikkotil, APL Materials 7, 071108 (2019)

Electronic structure and magnetic properties of Ca2IrO4, using first principles, V Singh, J J Pulikkotil Comp. Mater. Sci. 153, 97 (2018)

k− dependent Jeff= 12 band splitting and the electron-hole asymmetry in SrIrO3 V Singh, J J Pulikkotil, J. Phys. Chem. Solids 101, 45 (2017)

Post-perovskite CaIrO 3: a conventional Slater type antiferromagnetic insulator, V Singh, J J Pulikkotil Phys. Chem. Che. Phys. 18, 26300 (2016)

Metal-to-insulator transition in LaAl(1− x)Cr(x)O3/SrTiO3 oxide heterostructures guided by electronic reconstruction, P Kumar, P Pal, AK Shukla, JJ Pulikkotil, A Dogra, Phys. Rev. B 91, 115127 (2015)

Study of ferromagnetic instability in τ-MnAl, using first-principles, K Anand, J J Pulikkotil, S Auluck Journal of alloys and compounds 601, 234 (2014)

Conducting grain boundaries enhancing thermoelectric performance in doped Mg_2Si, S Muthiah, J. Pulikkotil, A K Srivastava, A Kumar, B D Pathak, A Dhar, R C Budhani, Appl. Phys. Lett. 103, 053901 (2013)

Mg3Sb2-based Zintl compound: a non-toxic, inexpensive and abundant thermoelectric material for power generation, A Bhardwaj, A Rajput, AK Shukla, JJ Pulikkotil, AK Srivastava, A Dhar, Govind Gupta, S Auluck, DK Misra, RC Budhani, RSC advances 3, 8504(2012)

Doping and temperature dependence of thermoelectric properties in Mg2(Si, Sn), J J Pulikkotil, D J Singh, S Auluck, M Saravanan, D K Misra, A Dhar, R C Budhani, Phys. Rev. B 86, 155204 (2012)

Photoconducting state and its perturbation by electrostatic fields in oxide-based two-dimensional electron gas, A Rastogi, J J Pulikkotil, S Auluck, Z Hossain, R C Budhani, Physical Review B 86, 075127 (2012)

Energetics and electronic structure of La/Sr disorder at the interface of $SrTiO_3/LaTiO_3$ heterostructure, J J Pulikkotil, S Auluck, P Kumar, A Dogra, R C Budhani, Appl. Phys. Lett. 99, 081915 (2011)

Patents

Boron doped manganese antimonide as a useful permanent magnet material, N Singh, J T J Pulikkotil, A Gupta, K Anand, A Dhar, R C Budhani, US Patent 9,968,999 (2018)

Current Activities

(Not more than 100 words)

Current research activities include
1. Research on quantum materials using first principles density functional theory based electronic structure calculations
2. Science Education Research

Honour(s)/Award(s)/ Fellowship(s)

Contributions to AcSIR

1. Associate Professor in AcSIR
2. Had remained Course instructor (i) Advanced Electronic Materials and Semiconductor Devices, (ii) Research Methodology (iii) Monte Carlo Simulations with Python for Uncertianity Quantification (iv) Advanced computational Physics

Membership of Professional Societies/ Institutions

1. Metrology Society of India
2. Technical Committee member of Management and Systems department, "Statistical Methods for Quality and Reliability Sectional Committee" Bureau of Indian Standards (BIS).
3. Technical Committee member of "Precious Metals Sectional Committee, MTD 10" of Bureau of Indian Standards (BIS).
4. Sub Committee member of Measurement Methods and Results : ISO/TC 69. Bureau of Indian Standards (BIS).
5. Member of Standing Publications, Ethics and Scientific Vigilance Committee, CSIR-NPL
6. Review Editor for Quantum Materials : Frontiers in Materials

Any other Information

(Not more than 100 words)