TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO **ID CODE 5951**

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Fisica Aldo Pontremoli** Scientist-in-charge: **PROF. FRATESI GUIDO**

[RAGHOTTAM SATTIGERI]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	**SATTIGERI**
Name	**RAGHOTTAM**

PRESENT OCCUPATION

Appointment	Structure
Adiunkt (Assistant Professor)	**ON6.5, International Research Centre MagTop, Institute of Physics, Polish Academy of Sciences, Warsaw, Poland**

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree	**Physics**	**The M S University of Baroda, India**	**2018**
Specialization	-	-	-
PhD	**Physics**	**The M S University of Baroda, India**	**2023**
Master	-	-	-
Degree of medical specialization	-	-	-
Degree of European specialization	-	-	-
Other	-	-	-

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City
-	-	-

FOREIGN LANGUAGES

Languages	level of knowledge
English	Advanced level

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2017	Four faculty-level awards in MSc
2016	Two university-level gold medals in BSc
2012	Criterion recognition award, Humans in Space Youth Art Competition by NASA, USRA and DLR

TRAINING OR RESEARCH ACTIVITY

I am well trained in materials design and modeling for various applications in 3D, 2D, 1D and 0D using Density Functional Theory. I have been involved in investigation of Topological phases of matter such as, Topological Insulators, and superconductors. I have investigated 2D van der Waal heterostructures as sensors and detectors. I studied materials for energy storage and applications such as, electro/photo-catalysis, thermoelectricity etc. Recently I have been involved in understanding the interplay between topology and superconductivity in bulk materials, vibrational dynamics using phonons, magnetism in topological matter, and altermagnetism in bulk and low dimensional compounds. I have experience with machine learning in materials design and prediction using techniques such as crystal graph convolutional neural networks.

PROJECT ACTIVITY

Year	Project
2023	Investigation of electronic structures and crystal orientation dependent surface states in altermagnetic compounds $LaMnO_3$, MnTe and RuO_2 (*Nanoscale*, **15**, 16998-17005 (2023))
2023	Investigation on interplay between topology and superconductivity in A15 compounds Nb_3X (X = Ge, Sn, Sb) and Ta_3Y (Y = As, Sb, Bi) via electronic structures, phonon dispersions, electron-phonon coupling, hubbard corrections and surface states (*arXiv*, **2310**.18245 (2023))
2023	Investigation of Phonon dispersion curves of $EuCd_2Bi_2$ (*Phys. Rev. B*, **108**(7), 075150 (2023)). Study on the effect of functionals and hubbard corrections on phonon dispersion curves to address experimental observations (Manuscript in preparation)
2022	Investigation of topological quantum catalysis in 2D topological insulators along the edge states (*Appl. Phys. Letts.*, **121**, 123101 (2022))
2021	Theoretical investigation in association with experiments to understand superior room-temperature ammonia sensing observed in MoS_2/SnO_2 composites (*ACS Omega*, **6**(17), 11602-11613 (2021))
2021	Investigation of Thermoelectric and Topological aspects of Gold Iodide by understanding the role of vibrational and electronic properties (*J. Condens. Matter Phys.*, **33**(15), 155402 (2021))
2020-2022	Investigation of topological insulating phase in some bulk and low dimensional materials
2020	Theoretical approach to understand the Action potential phenomena and its effects on nerve membrane (*Front. Comput. Neurosci.* **14**:21 (2020))

PATENTS

Patent
-

CONGRESSES AND SEMINARS

Date	Title	Place
09-14 July 2023	The 25th International Conference on the Electronic Properties of Two-Dimensional Systems (**EP2DS-25**) and 21st International Conference on Modulated Semiconductor Structures (**MSS-21**)	Grenoble, France
17-18 January 2023	Focused Expert Meeting on, "Interfacing Magnetism and Superconductivity with Topological Matter"	Warsaw, Poland
15-19 December 2021	65th DAE Solid State Physics Symposium	Mumbai, India
9-13 August 2021	Thomas Young Center, Moire-Twistronics workshop 2021	London, United Kingdom (Virtual)
7-11 December 2020	International Winter School 2020	Bangalore, India (Virtual)
17-22 December 2019	64th DAE Solid State Physics Symposium	Jodhpur, India

PUBLICATIONS

Books
-

Articles in reviews
'*Non-trivial topological phases in transition metal rich half-Heusler oxides*', Bhautik R Dhori, **Raghottam M. Sattigeri**, and Prafulla K Jha, *J. Phys.: Condens. Matter*, **36**, 055702 (2024)
'*Altermagnetic surface states: towards the observation and utilization of altermagnetism in thin films, interfaces and topological materials*', **Raghottam M. Sattigeri**, Giuseppe Cuono, and Carmine Autieri, *Nanoscale*, **15**, 16998-17005 (2023)
'*Orbital-selective altermagnetism and correlation-enhanced spin-splitting in strongly-correlated transition metal oxides*', Giuseppe Cuono, **Raghottam M. Sattigeri**, Jan Skolimowski, Carmine Autieri, *J. Magn. Magn. Mater.*, **586**, 171163 (2023)
'*Dirac surface states, multiorbital dimerization and superconductivity in Nb- and Ta-based A15 compounds*', **Raghottam M. Sattigeri** et.al., Available at *arXiv*, **2310**.18245 (2023)
'*Interplay between altermagnetism and nonsymmorphic symmetries generating large anomalous Hall conductivity by semi-Dirac points induced anticrossings*', Amar Fakhredine, **Raghottam M. Sattigeri**, Giuseppe Cuono, Carmine Autieri, *Phys. Rev. B*, **108**(11), 115138 (2023)
'*Ab initio overestimation of the topological region in Eu-based compounds*', Giuseppe Cuono, **Raghottam M. Sattigeri**, Carmine Autieri, and Tomasz Dietl, *Phys. Rev. B*, **108**(7), 075150 (2023)
'*Correlation-Driven Topological Transition in Janus Two-Dimensional Vanadates*', Ghulam Hussain, Amar Fakhredine, Rajibul Islam, **Raghottam M. Sattigeri** et.al., *Materials*, **16**(4), 1649 (2023)
'*Two dimensional LiMgAs: A topological quantum catalyst for hydrogen evolution reaction*', **Raghottam M. Sattigeri** et.al., *Appl. Phys. Letts.*, **121**, 123101 (2022)

'*A first-principles investigation of pressure induced topological phase transition in Half-Heusler AgSrBi*', Bhautik R Dhori, **Raghottam M. Sattigeri**, et.al., *Mater. Adv.*, **3**, 3938-3944 (2022)
'*Investigation of Topological and Catalytic properties of Gold Iodide (AuI) monolayer: A Density Functional Theory Study*', **Raghottam M. Sattigeri** et.al., *Phys. Status Solidi - Rapid Res. Lett.*, **16**(5), 2100657 (2022)
'*Functionalized Tellurene; a candidate large-gap 2D Topological Insulator*', **Raghottam M. Sattigeri** and Prafulla K Jha. *J. Condens. Matter Phys.*, **34**(8), 08LT01 (2021)
'*Superior Room-Temperature Ammonia Sensing Using a Hydrothermally Synthesized MoS_2/SnO_2 Composite*', Sukhwinder Singh, **Raghottam M. Sattigeri**, et.al., *ACS Omega*, **6**(17), 11602-11613 (2021)
'*Emergence of -s, -p-d band inversion in zincblende gold iodide topological insulator and its thermoelectric properties*', **Raghottam M. Sattigeri** et.al., *J. Condens. Matter Phys.*, **33**(15), 155402 (2021)
'*Towards the dimensional engineering of a strong Topological Insulator*', **Raghottam M. Sattigeri** and Prafulla K Jha. *Sci. Rep.*, **11**(1), 1-10 (2021)
'*Action Potential: A Vortex Phenomena; Driving Membrane Oscillations*', **Raghottam M. Sattigeri**, *Front. Comput. Neurosci.* **14**:21 (2020)
'*Volume expansive pressure (VEP) driven non-trivial topological phase transition in LiMgBi'*, **Raghottam M. Sattigeri** et.al., *Phys. Chem. Chem. Phys.*, **22**, 4602-4609 (2020)

Congress proceedings
'*Strain Driven Electronic Topological Transition in Half-Heusler LiCdAs: A Cubic Symmetry Breaking Approach*', Bhautik R Dhori, **Raghottam M. Sattigeri**, et.al., *Proceedings of the 65th DAE Solid State Physics Symposium*, **55**, 849-850 (2021)
'*Topological Insulating Phase in Two-Dimensional Selenene Sulphide: A DFT Study*', **Raghottam M. Sattigeri** et.al., *Proceedings of the 65th DAE Solid State Physics Symposium*, **55**, 849-850 (2021)
'*A first-principles Investigation of Topological Phase Transition in Half-Heusler LiMgSb Driven by Volume Expansive Pressure*', **Raghottam M. Sattigeri** et.al., *AIP Conference Proceedings*, **2265**(1), 030020 (2020)

OTHER INFORMATION

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

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Place and date: **WARSAW**, **08/11/2023**