Shahram Yalameha

Ph.D and Young Researcher

yalameha

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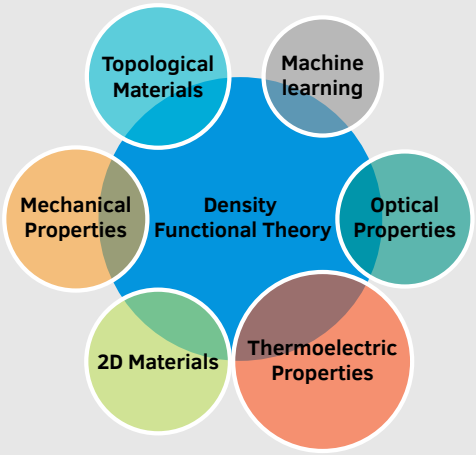
Skills



Program Langs.

- Octave
- Shell
- Python
- C++
- Fortran
- GPT: Large Language Model

References

Daryoosh Vashaee

dvashae@ncsu.edu

Ali Ramazani

ramazani@mit.edu

EDUCATION

2018 - 2024 **Ph.D. Condensed Matter Physics** — **University of Isfahan**
Isfahan, Iran
Specializations: Quantum Materials and Topological Materials
Supervisor: Dr. Zahra Nourbakhsh and Prof. Daryoosh Vashaee

2015 - 2017 **M.Sc. Condensed Matter Physics** — **University of Isfahan**
Isfahan, Iran
Specialization: Topological Materials and Mechanical Proprieties
Supervisor: Dr. Aminollah Vaez

2010 - 2014 **B.S. in Physics** — **University of Birjand**
Birjand, Iran

PROJECTS

2017 - 2021 **Elastic Tools Project (ElATools code)** — **University of Isfahan**
Isfahan, Iran

2019 - 202* **Higher order Topological index (Z2PI code)** — **University of Isfahan**
Isfahan, Iran

2024 - 202* **Text to speech (TTS) using Machine learning** — **University of Isfahan**
Isfahan, Iran

Conferences and Summer Schools

Jun 2016 **Autumn Meeting** — **Iran (Isfahan)**

- Speaker on the topological phase and Z_2 topological index

Sep 2016 **The Annual Physics Conference of Iran** — **Iran (Shiraz)**

- Presented two posters on Optical and Topological properties of AlNi compound.

Nov 2020 **Quantum ESPRESSO Workshop (Virtual workshop)** — **Iran (Mazandaran)**

- Quantum ESPRESSO Workshop on Electronic Structure Methods and Applications

March 2022 **APS March Meeting (Virtual Meeting)** — **Chicago**

- Talk: Prediction and control of the topological phases in Cs(Na, K)$_2$Bi compound using strain-engineering

March 2022 **APS March Meeting (Virtual Meeting)** — **Chicago**

- Talk: Topological phase and thermoelectric properties of bialkali bismuthide compounds (Na, K)$_2$RbBi from first-principles strain-engineering

March 2022 **APS March Meeting (Virtual Meeting)** — **Chicago**

- Poster: ElATools: A tool for predicting and analyzing anisotropic elastic properties of 2D and 3D materials

March 2022 **APS March Meeting (Virtual Meeting)** — **Chicago**

- Poster: Prediction of mechanical and anisotropic elastic properties of Cs(Na, K)$_2$Bi compounds under hydrostatic tension and compression and tunable auxetic properties

SOFTWARE EXPERIENCE

Microsoft OFFICE	**11 Years**
WIEN2k	**7 Years**
GNUPLOT	**7 Years**
WANNIER90	**6 Years**
Wannier-Berri	**1 Years**
WannierTools	**7 Years**
WannSymm	**1 Years**
BoltzTraP	**5 Years**
Lobster	**1 Years**
FHI-aims	**5 Years**
QUANTUM ESPRESSO	**5 Years**
SPR-KKR	**3 Years**
VASP	**3 Years**
Z2PACK	**3 Years**
GIBBS2	**5 Years**
Phonopy and Phono3py	**6 Years**
AELAS	**3 Years**
ElaStic	**4 Years**
CALYPOS	**1 Years**
Exciting	**2 Years**
WannierTools	**6 Years**
Elk	**2 Years**

AWARDS AND ACHIEVEMENTS

- Supported by the Iran's National Elites Foundation (2020-2022).
- Distinguished researcher in basic sciences (2021)

INVITED REVIEWER

- Journal of Applied Physics
- New Journal of Physics
- Journal of Physics D: Applied Physics
- Materials Research Express
- Journal of Alloys and Compounds
- Applied Physics Letters
- Physica Scripta
- Journal of Physics: Condensed Matter
- The Physics Society of Iran

Publications

- For Submitted manuscripts go to the next page or **Click here for Google Scholar**

World Scientific Connecting Great Minds	• Ab-initio thermodynamic and elastic properties of AlNi and $AlNi_3$ intermetallic compounds **Shahram Yalameha** and Aminollah Vaez, International Journal of Modern Physics B, (2018), 32(11), 11850129. **(link)**
ScienceDirect	• The effect of pressure and spin orbit interaction on topological phase and phonon dispersion of LuX (X= Sb, Bi) compounds, Mitra Narimani **Shahram Yalameha**, Zahra Nourbakhsh, Journal of Alloys and Compounds, (2018), 768, 433-440. **(link)**
ScienceDirect	• Hydrostatic strain-induced topological phase of KNa_2Sb, **Shahram Yalameha**, Zahra Nourbakhsh, and Aminollah Vaez, Journal of Magnetism and Magnetic Materials, (2018), 468, 279-286 **(link)**
ScienceDirect	• The investigation of structural, electronic, elastic and thermodynamic properties of $Gd_{1-x}Y_xAuPb$ alloys: A first principle study. Parviz Saeidi, **Shahram Yalameha**, Zahra Nourbakhsh, Physics Letters A, (2019), 383(2)3, 221-230. **(link)**
ScienceDirect	• The structural and elastic properties of InSb1-xBix alloys. Parviz Saeidi, **Shahram Yalameha**, Mohammad Hossein Shahidi kaviyani, Computational Condensed Matter, (2019), 18, e00358. **(link)**
ScienceDirect	• Structural, electronic, elastic and thermodynamic properties of $Al_{1-x}Z_xNi$ (Z= Cr, V and x= 0, 0.125, 0.25) alloys: First-principle calculations. **Shahram Yalameha** and Aminollah Vaez, Computational Condensed Matter, (2019), 21, e00415. **(link)**
AIP Journal of Applied Physics	• Insight into the topological phase and elastic properties of halide perovskites $CsSnX_3$ (X= I, Br, Cl) under hydrostatic pressures. **Shahram Yalameha**, Parviz Saeidi, Zahra Nourbakhsh, Aminollah Vaez, and Ali Ramazani, Journal of Applied Physics, (2020), 127(8), 085102. **(link)**
IOPscience	• Coexistence of type-I and critical-type nodal line states in intermetallic compounds ScM (M= Cu, Ag, Au). **Shahram Yalameha**, and Zahra Nourbakhsh, Journal of Physics: Condensed Matter, (2020), 32(29), 295502. **(link)**
IOPscience	• High thermoelectric efficiency of LaX (X= Sb, Bi) two dimensional topological insulators. Mitra Narimani, **Shahram Yalameha**, and Zahra Nourbakhsh, Journal of Physics: Condensed Matter, (2020), 32(25), 255501. **(link)**
ScienceDirect	• First principles calculations of structural, electronic and optical properties MoX_2 (X= S, Se) metal dichalcogenides and their nano-layers. Ahmad Mashmool, Parviz Saeidi, **Shahram Yalameha**, Zahra Nourbakhsh, Journal of Magnetism and Magnetic Materials, (2020), 503, 166572. **(link)**
ScienceDirect	• Quantum spin Hall effect, thermoelectric performance, and optical properties of XBi (X= Sc, Y) monolayers. Mitra Narimani, **Shahram Yalameha**, Zahra Nourbakhsh, Physica E: Low-dimensional Systems and Nanostructures, (2020), 122, 114199. **(link)**

Table 1: Publication List

ScienceDirect	• The effect of uniaxial strains on the electronic, thermoelectric and optical properties of TiS monolayer. Mitra Narimani, **Shahram Yalameha**, Zahra Nourbakhsh, Physica E: Low-dimensional Systems and Nanostructures, (2020), 132, 114818. **(link)**
ScienceDirect	• Topological quantum matter to topological phase conversion: Fundamentals, materials, physical systems for phase conversions, and device applications. Md Mobarak Hossain Polash, **Shahram Yalameha**, Haihan Zhou, Kaveh Ahadi, Zahra Nourbakhsh, Daryoosh Vashaee, Materials Science and Engineering: R: Reports, (2021), 145, 100620. **(link)**
nanomaterials	• Promising Bialkali Bismuthides Cs (Na, K)$_2$Bi for High-Performance Nanoscale Electromechanical Devices: Prediction of Mechanical and Anisotropic Elastic Properties under hydrostatic tension and compression and tunable auxetic properties. **Shahram Yalameha**, Zahra Nourbakhsh, Ali Ramazani, and Daryoosh Vashaee, Nanomaterials, (2021), 11(10), 2739. **(link)**
ScienceDirect	• Highly stable full Heusler order Cs (Na, K)$_2$Bi with diverse topological phases controlled by strain engineering. **Shahram Yalameha**, Zahra Nourbakhsh, Ali Ramazani, and Daryoosh Vashaee, Materials Science and Engineering: B, (2021), 273, 115430. **(link)**
IOPscience	• Topological phase and thermoelectric properties of bialkali bismuthide compounds (Na, K)$_2$RbBi from first-principles. **Shahram Yalameha**, Zahra Nourbakhsh, and Daryoosh Vashaee, Journal of Physics: Condensed Matter, under proof. **(link)**
Springer	• The pressure effects on electronic, thermoelectric, thermodynamic, and optical features of Li_3Bi. Mitra Narimani, **Shahram Yalameha**, Zahra Nourbakhsh, Journal of Computational Electronics, (2021), 20, 2300–2307. **(link)**
ScienceDirect	• ElATools: A tool for analyzing anisotropic elastic properties of the 2D and 3D materials. **Shahram Yalameha**, Zahra Nourbakhsh, Daryoosh Vashaee, Computer Physics Communications, (2022), 271, 108195. **(link)**
ScienceDirect	• Influence of hydrostatic pressure and concentration of Ge on the topological band order of $SnSi_{1-x}Ge_x$ alloys. **Shahram Yalameha**, and Zahra Nourbakhsh, Materials Science and Engineering: B 281, 115742. **(link)**
ROYAL SOCIETY OF CHEMISTRY	• New insights into band inversion and topological phase of TiNI monolayer. **Shahram Yalameha**, Zahra Nourbakhsh, Mohammad Saeed Bahramy, Daryoosh Vashaee, Physical Chemistry Chemical Physics 25 (17), 12182-12191. **(link)**
IOPscience	• Effect of hydrostatic strain on the mechanical properties and topological phase transition of bi-alkali pnictogen $NaLi_2Bi$. Seyed mohammad bagher Malek Hosseini and **Shahram Yalameha**, Physica Scripta 98, 045905. **(link)**
ScienceDirect	• Unlocking the potential of hexagonal boron sheets: Giant improvements in thermal conductivity and mechanics through molybdenum intercalation. Mohammad Alidoosti, Davoud Nasr Esfahani, **Shahram Yalameha**, Daryoosh Vashaee , Materials Today Physics 32, 101012. **(link)**

Table 2: Publication List

ScienceDirect	• A comprehensive computational investigation on the physical properties of the chalcogenide ternary Y_2ZnX_4 (Y= In, Ga; X= S, Se) compounds. Yaser Asadi, **Shahram Yalameha**, Zahra Nourbakhsh, Computational Condensed Matter, e00913. **(link)**
WILEY	• Investigating the Stable Structures and Topological Insulator Characteristics of Honeycomb AuTe Monolayer Through Decorating with Alkali Metal Atoms, as well as the Effects of Strain and Layering: a First-Principle Study, Mehrdad Faraji, **Shahram Yalameha**, Mojtaba Hosseine, Asadollah Bafekry, Advanced Theory and Simulations, 2400383. **(link)**
nanomaterials	• Anisotropic Elasticity, Spin–Orbit Coupling, and Topological Properties of $ZrTe_2$ and $NiTe_2$: A Comparative Study for Spintronic and Nanoscale Applications, Yasaman Fazeli,Zahra Nourbakhsh, **Shahram Yalameha**, Daryoosh Vashaee, Nanomaterials, 5(2):148. **(link)**
ScienceDirect	• First-principles study on the stability and optoelectronic properties of the novel C_6O_2 nanostructure, Shirin Amirian, Hamidreza Alborznia, **Shahram Yalameha**y, Solid State Communications, 115693. **(link)**
ROYAL SOCIETY OF CHEMISTRY	• In_2F_2 Monolayer: A New Class of Two-dimensional Materials with Negative Poisson's Ratio and Topological Phase, *Shahram Yalameha*, Hamidreza Alborznia, **Shahram Yalameha**y, Physical Chemistry Chemical Physics, Accept. **(link)**

Table 3: Publication List