



# Zahra Faraei

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## Publications

### Journals

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- Z. Faraei, S. A. Jafari, "Synthetic complex Weyl superconductors, chiral  $\pi$  Josephson effect and synthetic half-vortices", Accepted by Scientific Reports, 2023
- Z Faraei and S A Jafari, "Synthetic complex Weyl superconductors, chiral Josephson effect and synthetic half-vortices", Scientific Reports, 2023
- A Mohajerani and Z Faraei and S A Jafari, "Fast nuclear spin relaxation rates in tilted cone Weyl semimetals: redshift factors from Korringa relation", Journal of Physics: Condensed Matter, Vol. 33, NO. 21, may, 2021, doi: [10.1088/1361-648X/abe64e](https://doi.org/10.1088/1361-648X/abe64e)
- Somayeh Zarei, Vahid Daadmehr, Hossein Hakimi Pajouh, Zahra Faraei, "Effect of vacancy defects on the Josephson current in zigzag graphene narrow strips", Journal of Interfaces, Thin Films, and Low dimensional systems, Vol. 4, NO. 2, 2021
- Faraei, Z. and Jafari, S. A., "Electrically charged Andreev modes in two-dimensional tilted Dirac cone systems", Phys. Rev. B, Vol. 101, NO. 2, Jun, 2020, doi: [10.1103/PhysRevB.101.214508](https://doi.org/10.1103/PhysRevB.101.214508)
- Farajollahpour, T. and Faraei, Z. and Jafari, S. A., "Solid-state platform for space-time engineering: The  $\$8Pmmn\$$  borophene sheet", Phys. Rev. B, Vol. 99, NO. 2, Jun, 2019, doi: [10.1103/PhysRevB.99.235150](https://doi.org/10.1103/PhysRevB.99.235150)



- Faraei, Z. and Jafari, S. A., "Induced superconductivity in Fermi arcs", Phys. Rev. B, Vol. 100, NO. 2, Jul, 2019, doi: [10.1103/PhysRevB.100.035447](https://doi.org/10.1103/PhysRevB.100.035447)
- Somayeh Zarei, Vahid Daadmehr, Hossein Hakimi Pajouh, Zahra Faraei, "Josephson current for a Graphene nanoribbon using a lattice model", Journal of Interfaces, Thin films, and Low dimensional systems, Vol. 2, 2019
- Adinehvand, F. and Faraei, Z. and Farajollahpour, T. and Jafari, S. A., "Sound of Fermi arcs: a linearly dispersing gapless surface plasmon mode in undoped Weyl semimetals", Phys. Rev. B, Vol. 100, Nov, 2019, doi: [10.1103/PhysRevB.100.195408](https://doi.org/10.1103/PhysRevB.100.195408)
- Azin Mohajerani and Zahra Faraei and S A Jafari, "NMR diagnosis of pseudo-scalar superconductivity in 3D Dirac materials", Journal of Physics: Condensed Matter, Vol. 30, NO. 50, nov, 2018, doi: [10.1088/1361-648X/aaef7](https://doi.org/10.1088/1361-648X/aaef7)
- Faraei, Z. and Farajollahpour, T. and Jafari, S. A., "Green's function of semi-infinite Weyl semimetals", Phys. Rev. B, Vol. 98, NO. 50, Nov, 2018, doi: [10.1103/PhysRevB.98.195402](https://doi.org/10.1103/PhysRevB.98.195402)
- Faraei, Zahra and Jafari, S. A., "Superconducting proximity in three-dimensional Dirac materials: Odd-frequency, pseudoscalar, pseudovector, and tensor-valued superconducting orders", Phys. Rev. B, Vol. 96, NO. 50, Oct, 2017, doi: [10.1103/PhysRevB.96.134516](https://doi.org/10.1103/PhysRevB.96.134516)
- Z. Faraei and S.A. Jafari and V. Daadmehr, "Josephson current through randomly oriented CNTs", Physica C: Superconductivity and its Applications, Vol. 471, NO. 15, Oct, 2011, doi: <https://doi.org/10.1016/j.physc.2011.05.243>
- Faraii, Zahra and Zareyan, Malek, "Unconventional superconducting states induced in a ferromagnet by a d-wave superconductor", Phys. Rev. B, Vol. 69, NO. 15, Jan, 2004, doi:



[10.1103/PhysRevB.69.014508](https://doi.org/10.1103/PhysRevB.69.014508)

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