



第76回トポロジカル物質科学セミナー Topological Materials Science Seminar (76)

Odd-frequency superconducting pairing in junctions with spin-orbit coupling

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Place: Room 274, Faculty of Engineering Bldg. #3, Higashiyama Campus, Nagoya Univ. (名大東山キャンパス工学部3号館274号室)

Date: September 18 (Tuesday), 2018

Time: 10:00-11:30

Abstract:

In this talk I will discuss the emergence and consequences of odd-frequency spin-triplet superconducting correlations in NS and SNS junctions based on both topological insulator [1] and Rashba one-dimensional nanowires [2] in proximity to conventional spin-singlet s-wave superconductors.

I will show that odd-frequency spin-triplet superconductivity does not require the presence of magnetism but instead it naturally arises due to the unique nature of spin-orbit coupling and the non-constant pairing potential.

Finally, I will point out the differences between the induced odd-frequency pairing in topological insulators and in Rashba nanowires as well as their relation to experimental observables such as local-density of states, conductance and Andreev bound states in both situations.

References

[1] Jorge Cayao, Annica Black-Schaffer. Phys. Rev. B 96, 155426 (2017)

[2] Jorge Cayao, Annica Black-Schaffer. Phys. Rev. B 98, 075425 (2018)