

Okayama University
Faculty of Science

Research Institute for Interdisciplinary Science
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Okayama, November 12, 2019

Exercises for Advanced Physics 1, 2019 term 3

Exercise Set 5

(Due date: Tuesday, November 19, 2019)

Exercise 8 (Magnetism takes us beyond classical, nonrelativistic physics) (10 points)

- (a) Explain in your own words why relativistic effects are important in magnetism, and describe these effects (about 100 words).
- (b) Explain in your own words why there is no magnetism without quantum mechanics (about 100 words).

Hint: All information you need is in the script of the class. See
http://www.physics.okayama-u.ac.jp/jeschke_homepage/AP2019.html