

# Report task of Frontier Science II (Dec/21)

Kiyohide NOMURA

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Select one of the following themes (1-4), and write a small report (2-4 pages in A4 paper)

You must refer several English sources (research papers or Wikipedia)

Report contents may be contained applications of the following themes (1-4) in your research subjects.

- Submit to  
Office for Graduate School Education (W1-B-304)
- Deadline  
Jan/18/2017

## 1. Quantum interference of molecules

- (a) T. Juffmann et al.: Nature Nanotechnology **7**, 297-300 (2012)
- (b) S. Gerlich et al.: Nature Communications **2**, Article number: 263 (2011)
- (c) R. E. Sparks, V. M. Garcia-Suarez, D. Zs. Manrique, and C. J. Lambert Phys. Rev. B **83**, 075437 (2011)

## 2. Quantum Gyroscope and Josephson effect

- (a) R. W. Simmonds, A. Marchenkov, E. Hoskinson, J. C. Davis and R. E. Packard: Nature **412**, 55-58 (2001)
- (b) S. Narayana and Y. Sato: Phys. Rev. Lett. 106, 055302 (2011)
- (c) E. Hoskinson, Y. Sato, and R. Packard: Phys. Rev. B **74**, 100509(R)(2006)

3. Ring Laser Gyroscope

“How to Detect the Chandler and the Annual Wobble of the Earth with a Large Ring Laser Gyroscope”

K. U. Schreiber, T. Klugel, J.-P. R. Wells, R. B. Hurst, and A. Gebauer: Phys. Rev. Lett. **107**, 173904 (2011)

4. Superconducting Josephson-junction and SQUID