

# 凝縮系物理学ゼミナール

## Condensed Matter Seminar

Location: **Room 413**, School of Science Bldg. 5 (理学 5 号館 413 号室)

Date: **13:30-15:00**, Wednesday, 12 July 2017

### “Unusual superconducting gap structure protected by space group symmetry”

Speaker:

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Abstract:

Recent superconducting gap classification based on the space group symmetry [1-3] has revealed nontrivial gap structures which was not shown by the point group symmetry. In this study, we investigate the conditions that can give rise to such nontrivial gap structures. We show the general results for line nodes within the range of centrosymmetric and primitive space groups.

Furthermore, the gap classification shows that the unusual  $j_z$ -dependent point nodes appear on a threefold axis. We apply the classification to the uranium compound  $UPt_3$  and confirm the result by using numerical calculation of the effective tight-binding model.

References:

- [1] T. Micklitz and M. R. Norman, Phys. Rev. B **80**, 100506 (2009).
- [2] T. Micklitz and M. R. Norman, Phys. Rev. B **95**, 024508 (2017).
- [3] T. Nomoto and H. Ikeda, J. Phys. Soc. Jpn. **86**, 023703 (2017).