

1138-35-246

**Hidemitsu Wadade\*** ([wadade@se.kanazawa-u.ac.jp](mailto:wadade@se.kanazawa-u.ac.jp)), Institute of Science and Engineering, Kanazawa University, Kakuma-machi, Kanazawa, Ishikawa 920-1192, Japan, and **Michinori Ishiwata** ([ishiwata@sigmath.es.osaka-u.ac.jp](mailto:ishiwata@sigmath.es.osaka-u.ac.jp)), Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka 560-8531, Japan. *On a maximizing problem of the Sobolev embedding related to the space of bounded variation.*

In this talk, we consider the maximizing problem associated with Sobolev embedding related to the space of bounded variation of BV-functions, which is a substitute of the Sobolev space of the marginal case. In our setting of the maximizing problem, we suffer from the non-compactness due to the vanishing phenomenon and the non-reflexivity of the space of BV-functions. In order to overcome these difficulties, we use the fact that the family of maximizers of the Sobolev embedding with BV-functions is the set of characteristic functions on balls. Simultaneously, we give a characterization of maximizers of our problem to prove that the maximizers must form characteristic functions on balls and specify their radii and heights exactly. This is a joint work with Prof. Michinori Ishiwata in Osaka University. (Received February 11, 2018)