1079-39-206 **Jun-ichi Inoguchi** (inoguchi@sci.kj.yamagata-u.ac.jp), Department of Mathematical Sciences, Yamagata University, 1-4-12 Kojirakawa-machi, Yamagata, Yamagata 990-8560, Japan, **Kenji Kajiwara*** (kaji@imi.kyushu-u.ac.jp), Institute of Mathematics for Industry, Kyushu University, 744 Motooka, Nishi-ku, Fukuoka, Fukuoka 819-0395, Japan, **Nozomu Matsuura** (nozomu@fukuoka-u.ac.jp), Department of Applied Mathematics, Fukuoka University, Nanakuma, Fukuoka, Fukuoka 814-0180, Japan, and **Yasuhiro Ohta** (ohta@math.sci.kobe-u.ac.jp), Department of Mathematics, Kobe University, Rokko, Kobe, 657-8501, Japan. *Discretization of planar curve motions and discrete modified KdV equations.*

It is well-known that smooth curves on the Euclidean plane admit the motion described by the modified Korteweg-de Vries (mKdV) equation. In this talk we consider the problem of discretization of planar curve motions preserving the underlying integrable structure. More precisely, we introduce the discrete planar curves and discuss their continuous and discrete motions described by the semi-discrete and discrete mKdV equations, respectively. We construct explicit formulas for the curve motions in terms of the tau function. Continuous limit to the motion of smooth curves is also discussed. (Received January 17, 2012)