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**Shinya Okabe\*** (okabes@m.tohoku.ac.jp), 6-3, Aramaki Aza Aoba, Aoba-ku, Sendai, Miyagi 9808578, Japan. *A gradient flow for the  $p$ -elastic energy defined on inextensible closed curves in the plane.*

We consider a  $L^2$ -gradient flow for the  $p$ -elastic energy defined on planar inextensible closed curves. For the case of  $p = 2$ , Y. Wen (1993) proved that the Cauchy problem on the flow has a unique global-in-time solution. We generalize results of Wen (1993) to the case where  $p \neq 2$ . More precisely, employing minimizing movement scheme, we prove the short time existence of the flow in a weak sense. This talk is based on a joint work with P. Pozzi (Universität Duisburg-Essen) and G. Wheeler (University of Wollongong). (Received January 28, 2019)