1077-60-1336 **Hui-Hsiung Kuo** (kuo@math.lsu.edu), Department of Mathematics, 303 Lockett Hall, Louisiana State University, Baton Rouge, LA 70803, **Anuwat Sae-Tang** (anuwat.sae@kmutt.ac.th), Department of Mathematics, Faculty of Science, King Mongkut's University of Technology, Thonburi, Bangkok, Thailand, and **Benedykt Szozda*** (benny@math.lsu.edu), Department of Mathematics, 303 Lockett Hall, Louisiana State University, Baton Rouge, LA 70803. *New Itô formula with application to linear SDEs with anticipating initial conditions.*

In [1,2] Ayed and Kuo presented a new approach to stochastic integration of a special class of anticipating stochastic processes. Their approach is based on the decomposition of the integrand into the adapted part and instantly independent part, and is an extension of the Itô theory of stochastic integration. In this talk we will present an Itô formula for the new stochastic integral defined by Ayed and Kuo. We will also give a solution of a linear stochastic differential equation with anticipating initial condition of a special form.

References

[1] Ayed, W. and Kuo, H.-H.: An extension of the Itô integral *Communications on Stochastic Analysis* **2** (2008) 323–333.
[2] Ayed, W. and Kuo, H.-H.: An extension of the Itô integral: Toward a general theory of stochastic integration, *Theory of Stochastic Processes* **16**(32) (2010) N1 17-28.
[3] Kuo, H.-H., Sae-Tang, A., and Szozda, B.: A stochastic integral for adapted and instantly independent stochastic processes, *to appear in "Festschrift in honour of Professor Robert Elliott."* (Received September 22, 2011)