1057-65-373 **Kening Wang*** (kening.wang@unf.edu), Department of Mathematics and Statistics, University of North Florida, Jacksonville, FL 32224, and **Shuang Li** (ben.shuangli@gmail.com), Derivative Valuation Center, Ernst & Young LLp, New York, NY 10036. *Strong Superconvergence of Finite Element Methods for Linear Parabolic Problems.*

We study the strong superconvergence of a semi-discrete finite element scheme for linear parabolic problems on $Q = \Omega \times (0, T]$, where Ω is a bounded domain in $\mathcal{R}^d (d \leq 4)$ with piecewise smooth boundary. We establish the global two order superconvergence results for the error between the approximate solution and the Ritz projection of the exact solution of our model problem in $W^{1,p}(\Omega)$ and $L_p(Q)$ with $2 \leq p < \infty$ and the almost two order superconvergence in $W^{1,\infty}(\Omega)$ and $L_\infty(Q)$. Results of the $p = \infty$ case are also included in two space dimensions ($d = 1$ or 2). By applying the interpolated postprocessing technique, similar results are also obtained on the error between the interpolation of the approximate solution and the exact solution. (Received January 26, 2010)