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Jianhui Huang, Guangchen Wang and Jie Xiong* (jxiong@math.utk.edu), Department of Mathematics, University of Tennessee, Knoxville, TN 37996. *A maximum principle for partial information backward stochastic control problems with applications.*

We consider the partial information control problems of backward stochastic systems. First, we obtain a new stochastic maximum principle for partial information control problems. Our method relies on a direct calculation of the derivative of the cost functional. Second, we introduce two classes of partial information linear-quadratic backward control problems and then investigate them using the maximum principle. Complete and explicit solutions are obtained in terms of some forward and backward stochastic differential filtering equations. Third, we study a class of full information stochastic pension fund optimization problems which can be viewed as a special case of our general partial information ones. Applying the aforementioned maximum principle, we derive the optimal contribution policy in closed-form and present some related economic remarks. (Received May 21, 2009)