Supporting Information

**Figure S1**: Time profile of the change in concentration of RhB aqueous solution for the three cycles in the presence of Au-ZnO photocatalyst.

**Figure S2**: A typical SEM image of Au-ZnO photocatalyst after three cycle of operation.
**Figure S3**: A typical SEM image of the Au-ZnO hybrid nanostructure after 50 cycles operation.

**Figure S3**: A typical SEM image of the pure ZnO structure after (a) 20 cycles (b) 50 cycles operation.