**Shifted Delta Function Potential**

2014/11/21

Solve the one dimensional quantum problem for  and 

Solution：

For and ，the TISE reads

．Let  (which is real)，so 

General solution is ．

So assume that  and since  at ， and ．So  and ．

Implement the boundary condition at 

1．，so  (1)

2．，and substitute with ．(2)

Normalization condition is

3． (3)

Solve for the 3 equations above，we get ，，．Hence

，which is symmetric with ．