# AD\_Excitation

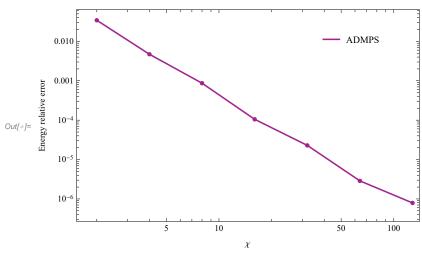
# 1D ground state

### useful function

### Heisenberg

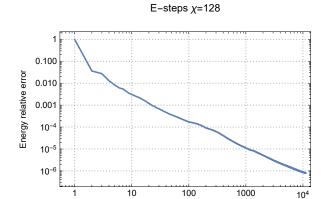
#### relative error- $\chi$

error exponentially-dependent on  $\chi$ 



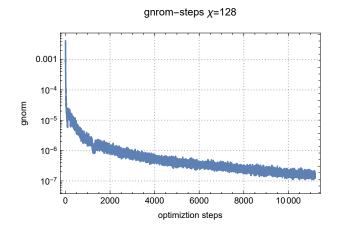
#### relative error-steps

error exponentially-dependent on steps



steps

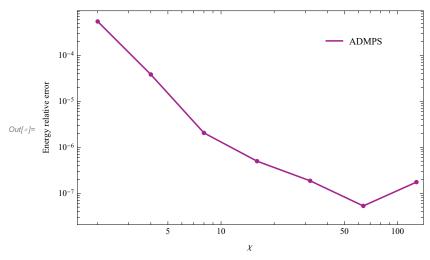
Out[ • ]=



### TFIsing at critical point g=0.5

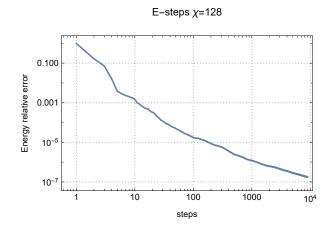
#### relative error- $\chi$

error exponentially-dependent on  $\chi$ 

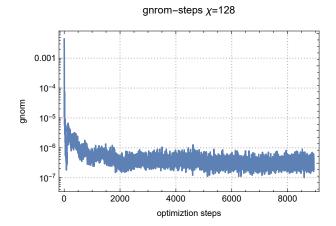


#### relative error-steps

error exponentially-dependent on steps



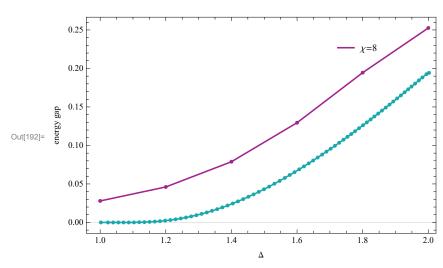
Out[ • ]=



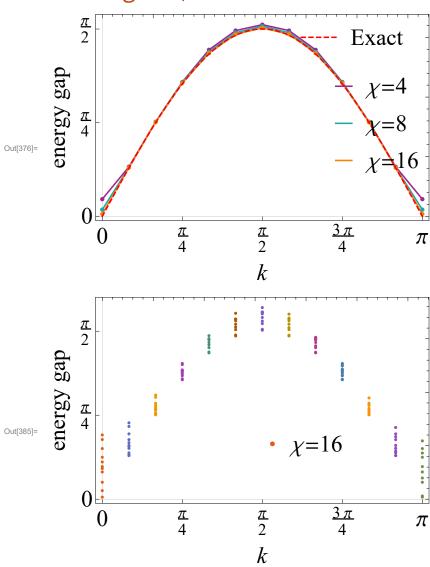
## 1D Excitation

### U1

### XXZ ∆=1



# Heisenberg S=1/2



# Heisenberg S=1

