

FIG. 1: The total DOS of  $V_nBz_{n+1}$  ( $n \leq 8$ ) and  $V(Bz)_\infty$ . The vertical dashed line represents the Fermi level.

FIG. 2: Total magnetic moments of  $V_nBz_{n+1}$  as a function of  $n$ , and the DOS of  $V_9Bz_{10}$  and views of  $V_7Bz_8$  are shown in (a) and (b) of the inset, respectively.

FIG. 3: The total energy *vs* the magnetic moment of  $V(Bz)_\infty$ .

FIG. 4: The total DOS of  $V_nBz_{n+1}$  in the presence of external electronic field, (a) and (b) for the electronic field are 0.0 eV/Å and 0.5 eV/Å, respectively.