Supplementary Information:

**Planar film C\textsubscript{3}Ca\textsubscript{2}: A novel 2p Dirac half metal**

Wei-xiao Ji,* Bao-min Zhang, Shu-feng Zhang, Chang-wen Zhang,**

Meng Ding, Ping Li and Pei-ji Wang

School of Physics and Technology, University of Jinan,
Jinan, Shandong, 250022, P. R. China

* hellojiweixiao@163.com
** zhchwsd@163.com

Figure S1 Comparison of band structures from PBE(black lines) and HSE06(red dots) calculations.
Figure S2 Spin-resolved band structure of C₃Ca₂ under mild biaxial tensile and compressional strains (±3% ~ ±5%), from which the maintenance of Dirac half metal characteristic persist. The red and blue lines represent the spin up and down channel respectively.