

Undelaminated multilayer MXenes for block thermoelectric generator

Zhangli Du^{a, b, †}, Kaipeng Deng^{a, †}, Feng Wang^c, Xusheng Liu^d, Binbin Jiang^d, Tao Zhao^{b, d},
Wenke Xie^{c*}, Xu Xiao^{a, b*}, Tianpeng Ding^{a, b*}

^aYangtze Delta Region Institute (Huzhou), University of Electronic Science and Technology of China, Huzhou, Zhejiang 313001, China.

^bSchool of Physics, University of Electronic Science and Technology of China, Chengdu, Sichuan 611731, China.

^cSchool of Electronic Science and Engineering, University of Electronic Science and Technology of China, Chengdu, Sichuan 611731, China.

^dShenzhen Institute for Advanced Study, University of Electronic Science and Technology of China, Shenzhen 518110, China.

[†]These authors contributed equally.

*Correspondence and requests for materials should be addressed to: wk_xie@uestc.edu.cn; xuxiao@uestc.edu.cn; dingtp@uestc.edu.cn.

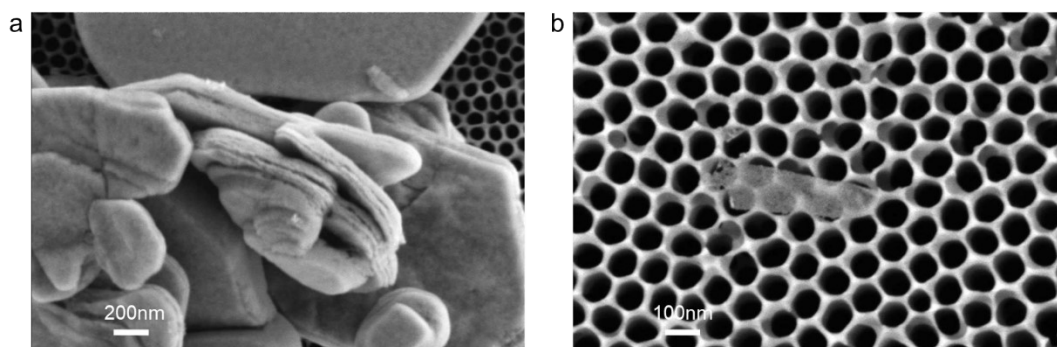


Figure S1. SEM image of (a) multilayer Mo₂C and (b) monolayer Mo₂C.

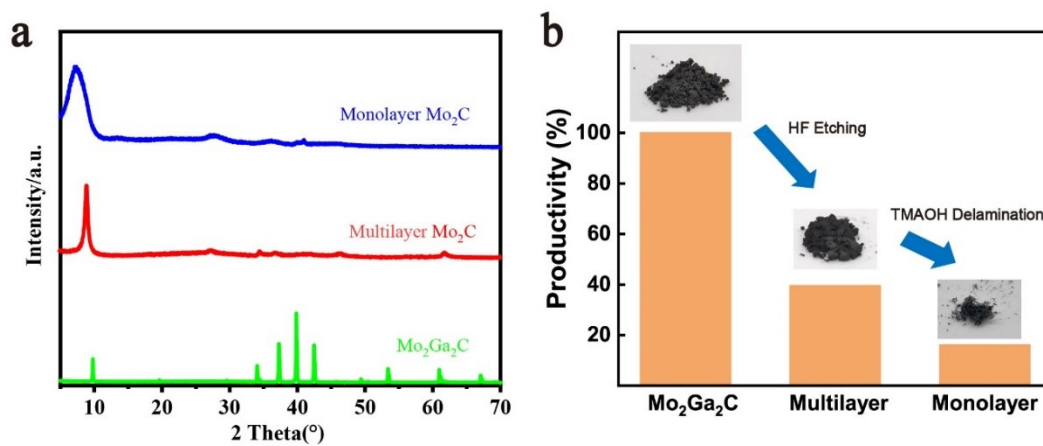


Figure S2. (a) X-ray diffraction spectra of multilayer and monolayer Mo₂C. (b) Productivity of multilayer and monolayer Mo₂C. Insets: Photographs of the Mo₂Ga₂C, multilayer Mo₂C, and monolayer Mo₂C powders.

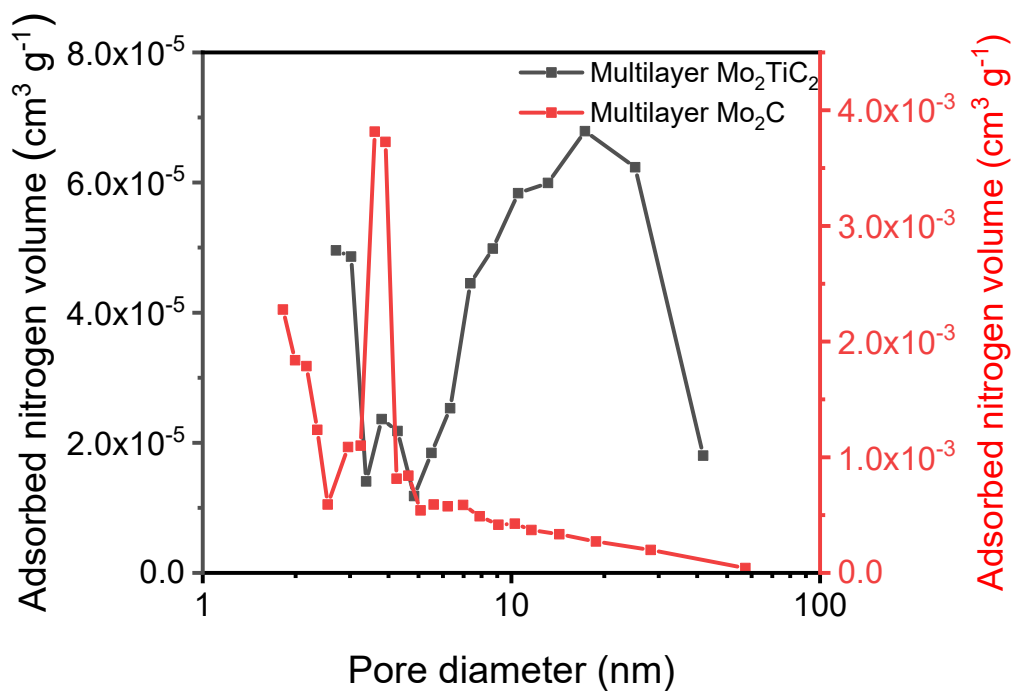


Figure S3. The average pore diameter of multilayer Mo₂TiC₂ and monolayer Mo₂TiC₂.

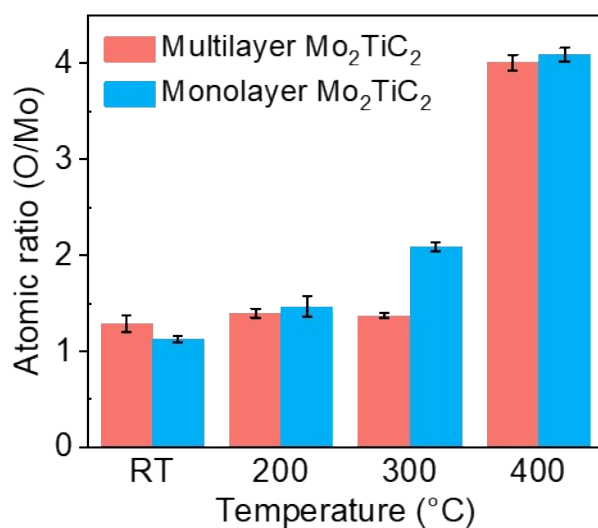


Figure S4. The oxygen-molybdenum content ratio of Mo₂TiC₂ at different annealing temperatures in air atmosphere for 1h.

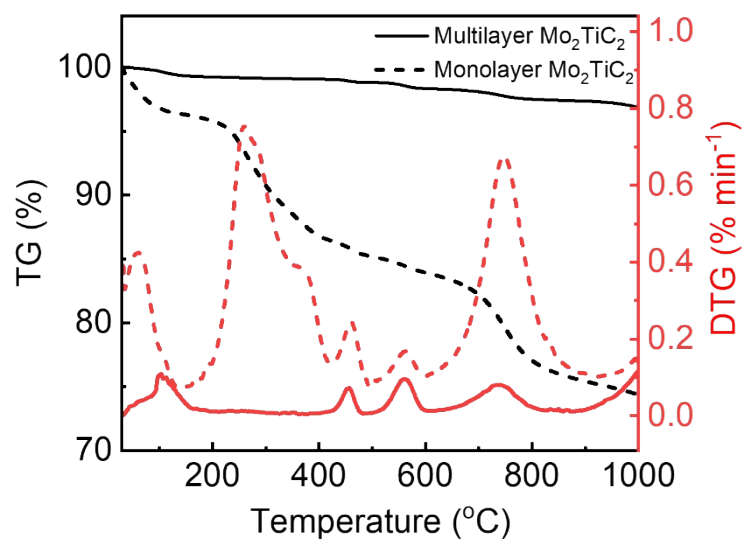


Figure S5. TG and DTG curves of the multilayer and monolayer Mo_2TiC_2 .

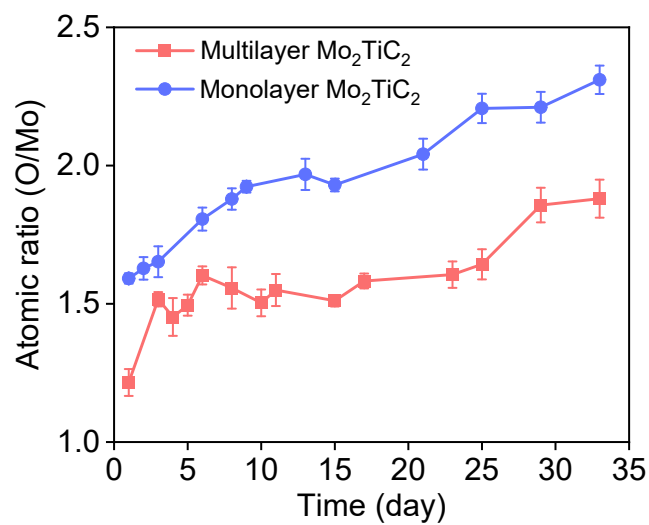


Figure S6. Changes in oxygen-molybdenum content ratio of multilayer and monolayer Mo_2TiC_2 with storage time under environmental conditions (temperature: 25 °C, humidity: 40%).

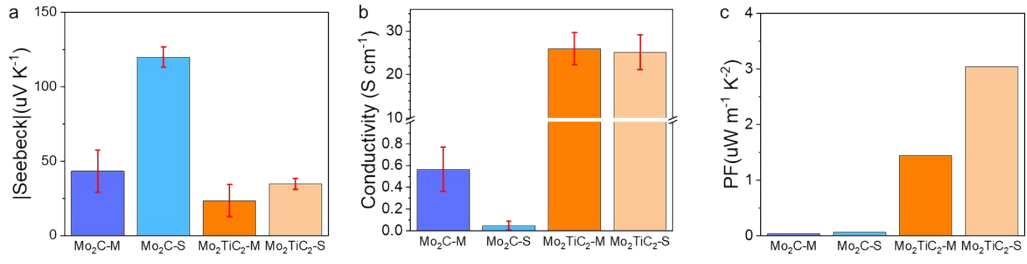


Figure S7. (a) Seebeck coefficients, (b) conductivity and (c) power factor of multilayer Mo₂C and Mo₂TiC₂, monolayer Mo₂C and Mo₂TiC₂ at room temperature.

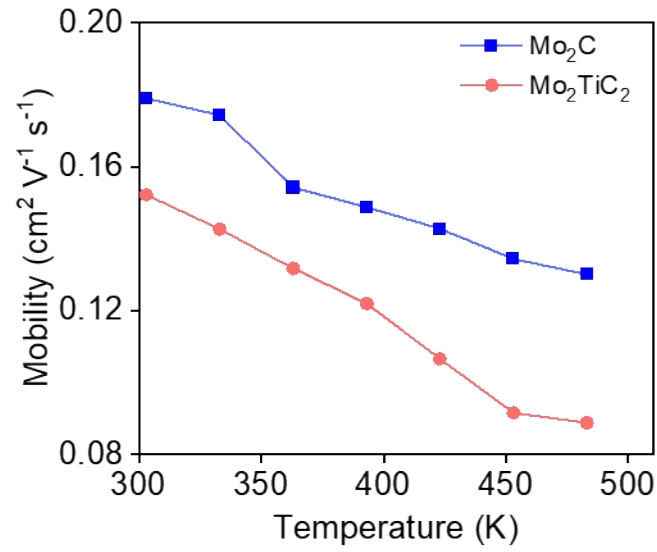


Figure S8. The carrier mobility of the multilayer Mo₂TiC₂ and Mo₂C as a function of temperature.

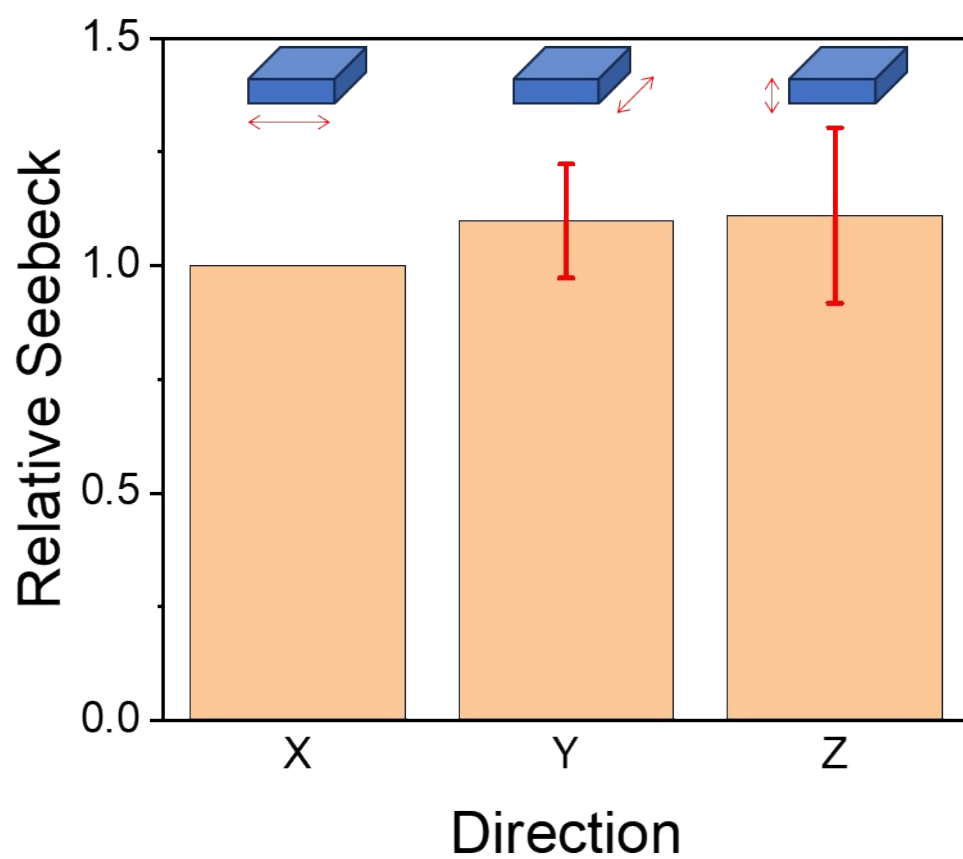


Figure S9. Relative Seebeck coefficients in different directions in block multilayer MXene.