

Shiyu Zhang^{1,2†}, Yun Yang^{1†}, Liwei Cheng^{1,2†}, Jian Sun^{1,2}, Xiaomei Wang^{1,2,4}, Pengfei Nan⁵, Chaomei Xie⁶,
Haisheng Yu¹, Yuanhua Xia⁶, Binghui Ge⁵, Jun Lin¹, Linjuan Zhang^{1,3}, Chengzhi Guan^{1,3}, Guoping Xiao^{1,3}, Cheng
Peng^{1,2,3*}, George Zheng Chen^{7,8*}, Jian-Qiang Wang^{1,2,3*}

¹Key Laboratory of Interfacial Physics and Technology, Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai 201800, China

²University of Chinese Academy of Sciences, No.19(A) Yuquan Road, Shijingshan District, Beijing 100049, China

³Dalian National Laboratory for Clean Energy, Dalian 116023, China

⁴State Key Laboratory of Radiation Medicine and Protection, School for Radiological and Interdisciplinary Sciences (RAD-X) and Collaborative Innovation Center of Radiation Medicine of Jiangsu Higher Education Institutions, Soochow University, Suzhou 215123, China

⁵Institute of Physical Science and Information Technology, Anhui University, Hefei, China

⁶Key Laboratory of Neutron Physics and Institute of Nuclear Physics and Chemistry, China Academy of Engineering Physics, 621999, Mianyang, China

⁷Department of Chemical and Environmental Engineering, Faculty of Engineering, University of Nottingham, University Park, Nottingham NG7 2RD, United Kingdom

⁸Department of Chemical and Environmental Engineering, Faculty of Science and Engineering, University of Nottingham Ningbo China, Ningbo 315100, China

†These authors contributed equally: Shiyu Zhang, Yun Yang, Liwei Cheng.

*E-mail: pengcheng@sinap.ac.cn, george.chen@nottingham.ac.uk, wangjianqiang@sinap.ac.cn.