

Electrospun Silica/Nafion Hybrid Products: Mechanic Improving, Wettability Tuning and Periodic Structure Adjusting

Jianjun Li,^a Jungang Cao,^b Zhonglin Wei,^b Min Yang,^c Weilong Yin,^a Kai Yui,^d

Yongtao Yao,^{*a} Haibao Lv,^{*a} Xiaodong He,^a Jinsong Leng,^a

^aNational Key Laboratory of Science and Technology on Advanced Composites in
Special Environments, Harbin Institute of Technology, Harbin, 150080, P. R. China

E-mail: yaoyt99@163.com and luhb@hit.edu.cn

^bCollege of Chemistry, Jilin University, Changchun, 130012, P. R. China

^cSchool of Chemical Engineering & Technology, Harbin Institute of Technology,
Harbin, 150080, P. R. China

^dThe George Woodruff School of Mechanical Engineering, Georgia Institute of
Technology, Atlanta, GA 30332, USA

Pure SiO₂ membrane

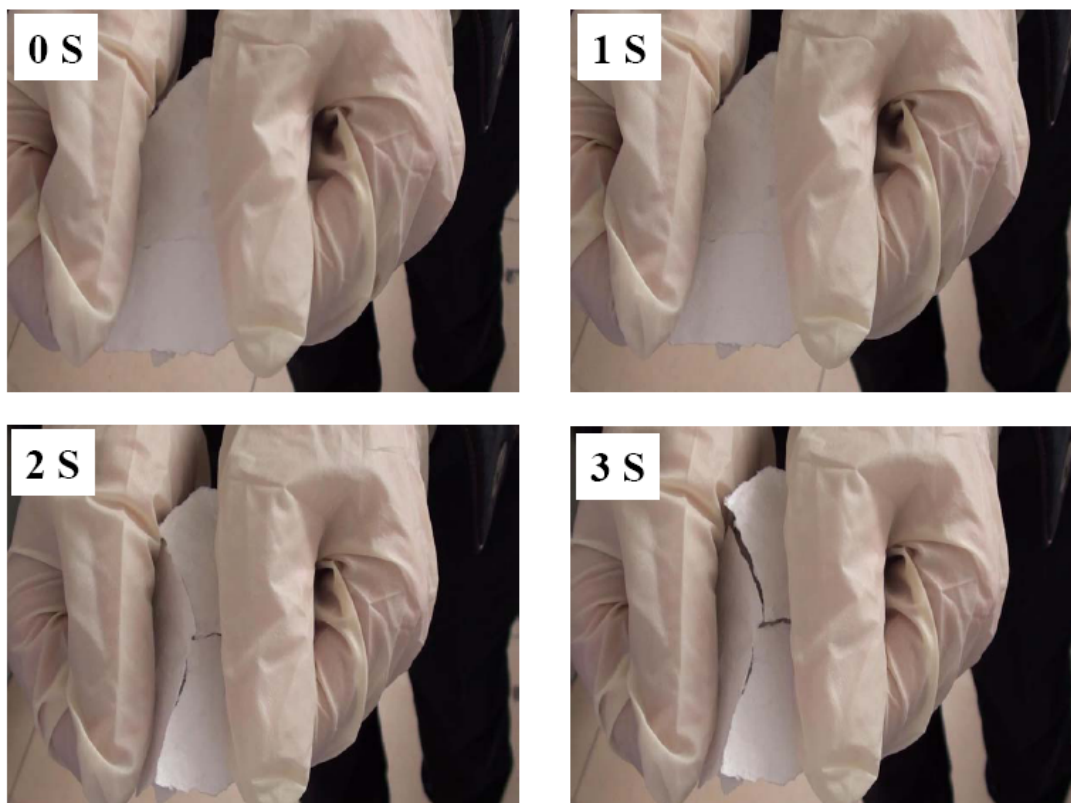


Figure S1. Indication of brittleness of electrospun pure silica membrane.

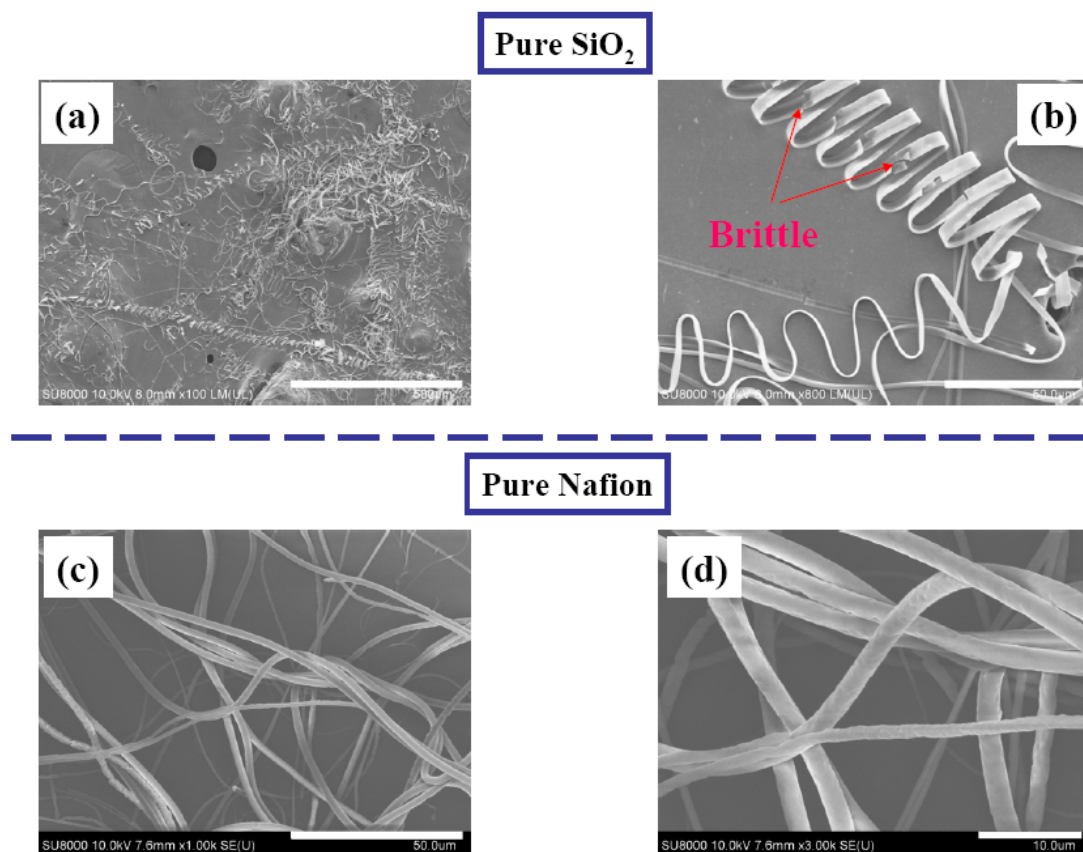


Figure S2. SEM images of silica ribbon with long-range periodic structure (a: scalar bar 500 μm) and brittleness of single electrospun silica product (b: scalar bar 60 μm); SEM images of Nafion with a much narrow diameter distribution (c and d: scalar bar 50 and 10 μm).

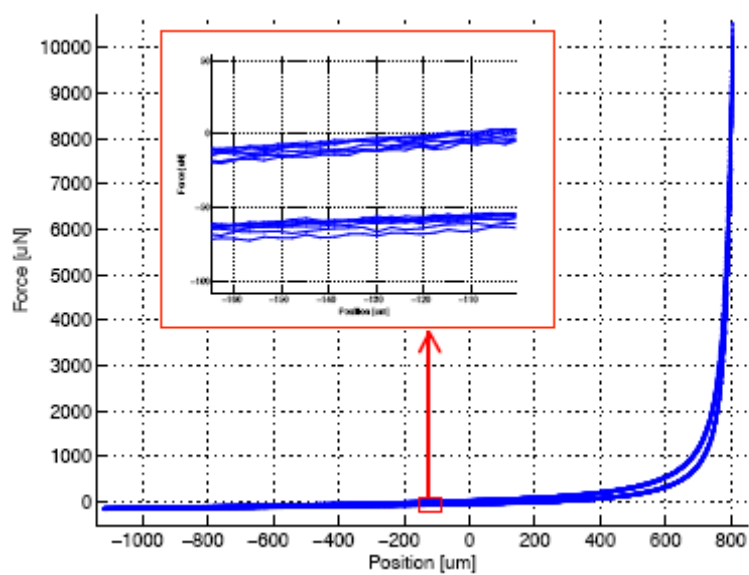


Figure S3. Force versus deformation curve of hybrid fiber under -150~11000 μN and the measurement has been repeated 8 times.