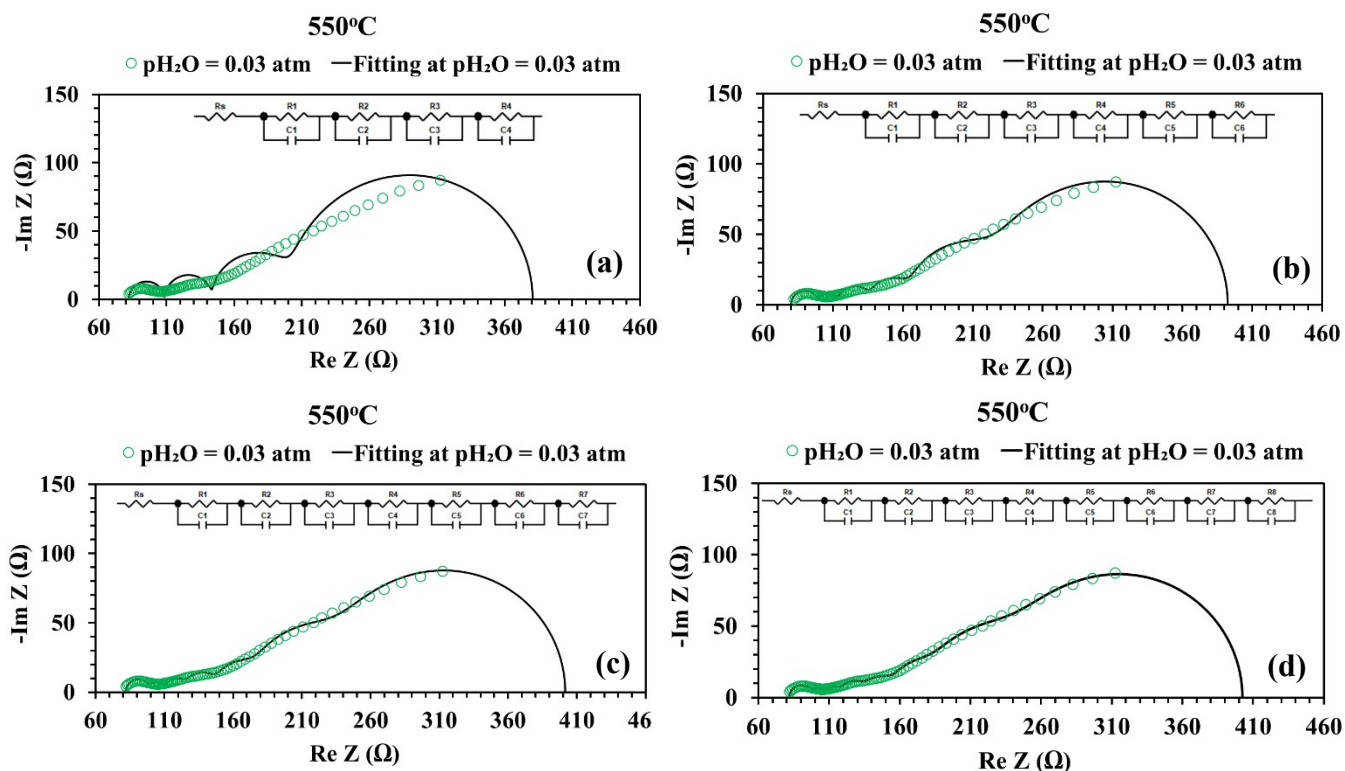


## Supplementary Materials for

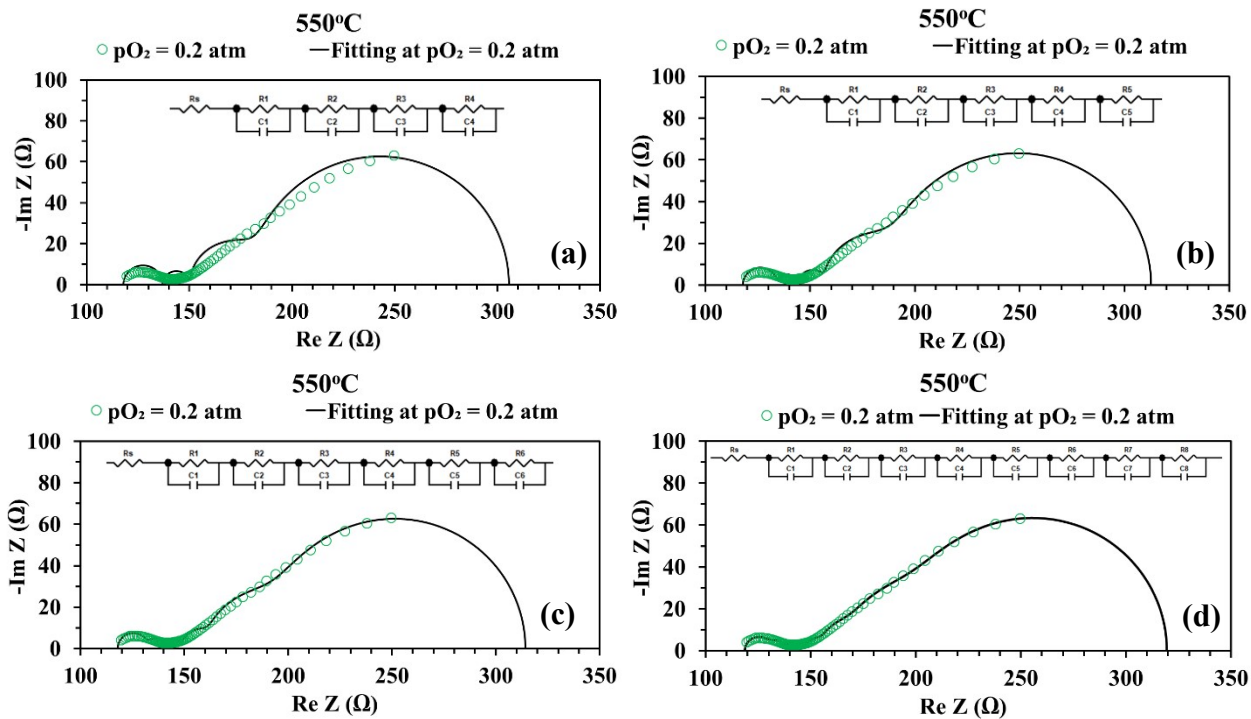
### Fabrication and Preliminary Testing of Silver Patterned Cathodes for Proton Conducting IT-SOFC

Md Shariful Islam Sozal, Wenhao Li, Suprabha Das, Borzooye Jafarizadeh, Azmal Huda Chowdhury, Chunlei Wang, Zhe Cheng\*

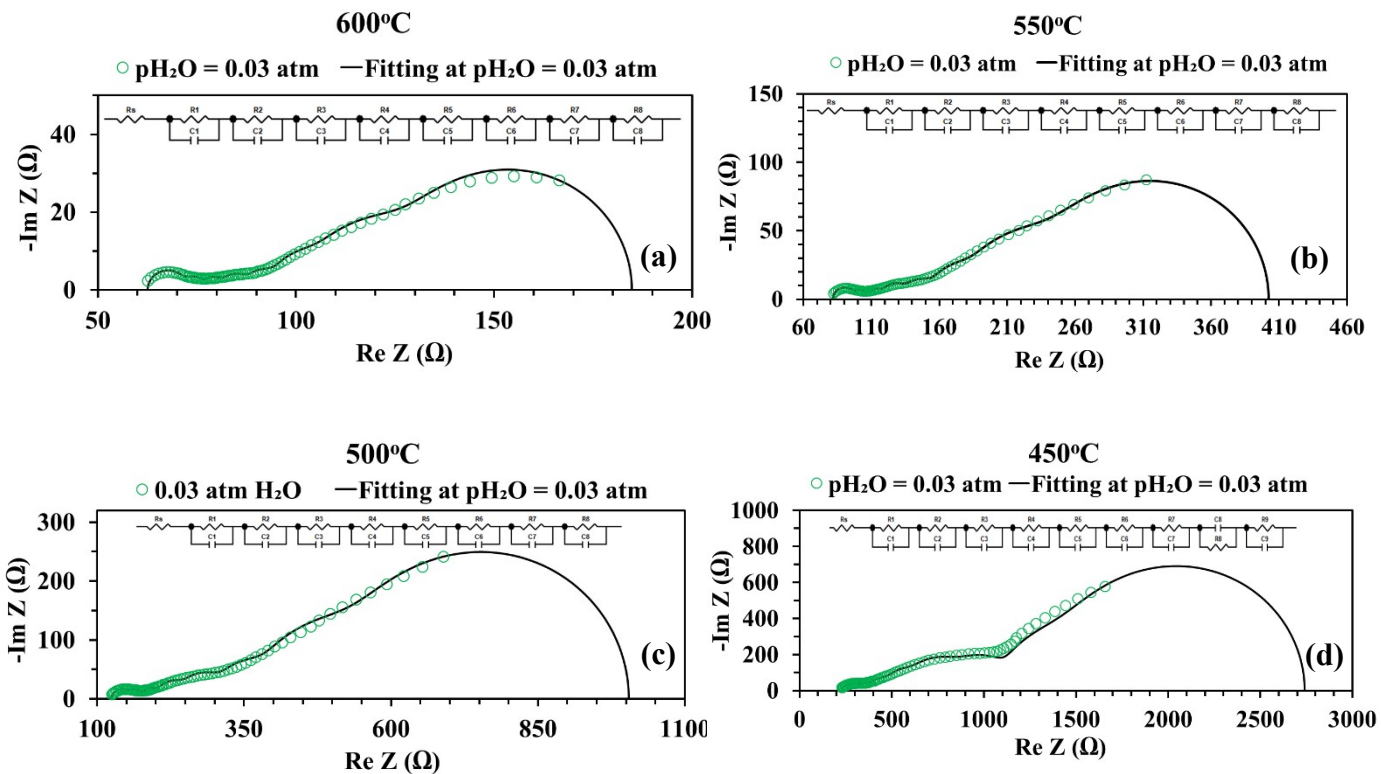
\*Correspondence: Dr. Zhe Cheng [zhcheng@fiu.edu](mailto:zhcheng@fiu.edu)



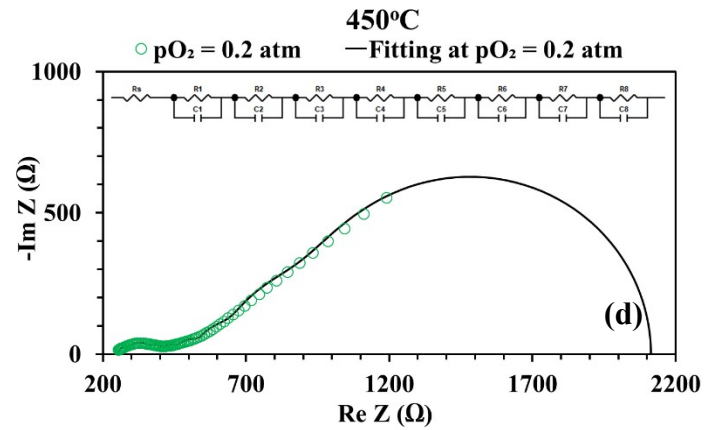
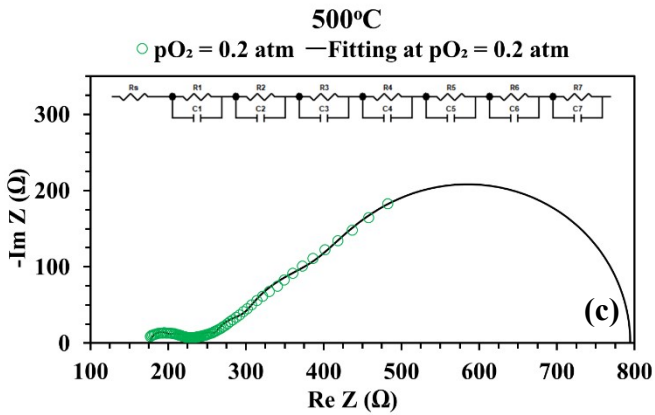
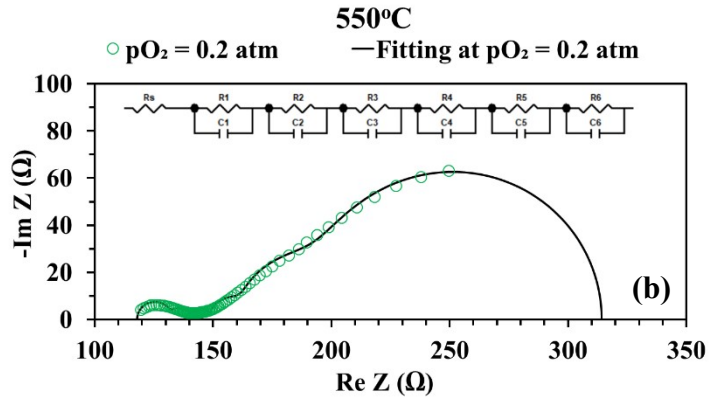
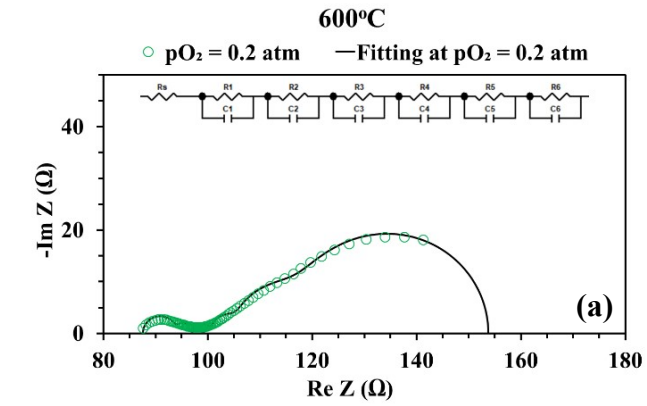
Supplementary Figure S1: Equivalent fittings for the EIS plot at 550 °C in simulated air with water addition at  $p_{\text{H}_2\text{O}} = 0.03$  atm., considering (a) 4, (b) 6, (c) 7, and (d) 8 RC circuits.



Supplementary Figure S2: Equivalent fittings for the EIS plot at 550°C in dry 20%  $O_2$ -80%  $N_2$  mixture (i.e.,  $pO_2 = 0.2$  atm.), considering (a) 4, (b) 5, (c) 6, and (d) 8 RC circuits.



Supplementary Figure S3: Equivalent fittings for the EIS plot in simulated air with water addition at  $pH_2O = 0.03 \text{ atm}$ . at (a) 600, (b) 550, (c) 500, and (d) 450°C.



Supplementary Figure S4: Equivalent fittings for the EIS plot in dry 20%  $O_2$ -80%  $N_2$  mixture (i.e.,  $pO_2 = 0.2$  atm.) at (a) 600, (b) 550, (c) 500, and (d) 450°C.