Supporting information

Influence of Ti^{IV} substitution on the properties of a $Li_{1.5}Al_{0.5}Ge_{1.5}(PO_4)_3$ nanofiber-based solid electrolyte

*Andrea La Monaca,[a,b] Gabriel Girard,[a] Sylvio Savoie,[a] Sergey Krachkovskiy,[a] René Veillette,[c] Filippo Pierini[d], Ashok Vijh,[a] Federico Rosei,[b] and Andrea Paolella[a]**

[a] Centre d'excellence en électrification des transports et stockage d'énergie, Hydro-Québec, 1806 Boulevard Lionel-Boulet, Varennes, Québec J3X 1S1, Canada.

[b] Centre Énergie, Matériaux et Télécommunications, Institut National de la Recherche Scientifique, 1650 Boulevard Lionel-Boulet, Varennes, Québec J3X 1S2, Canada.

[c] Institut de Recherche d'Hydro-Québec, 1800 Boulevard Lionel-Boulet, Varennes, Québec J3X 1S1, Canada.

[d] Department of Biosystems and Soft Matter, Institute of Fundamental Technological Research Polish Academy of Sciences, 02-106 Warsaw, Poland

* Corresponding author: Andrea Paolella (paolella.andrea2@hydroquebec.com)

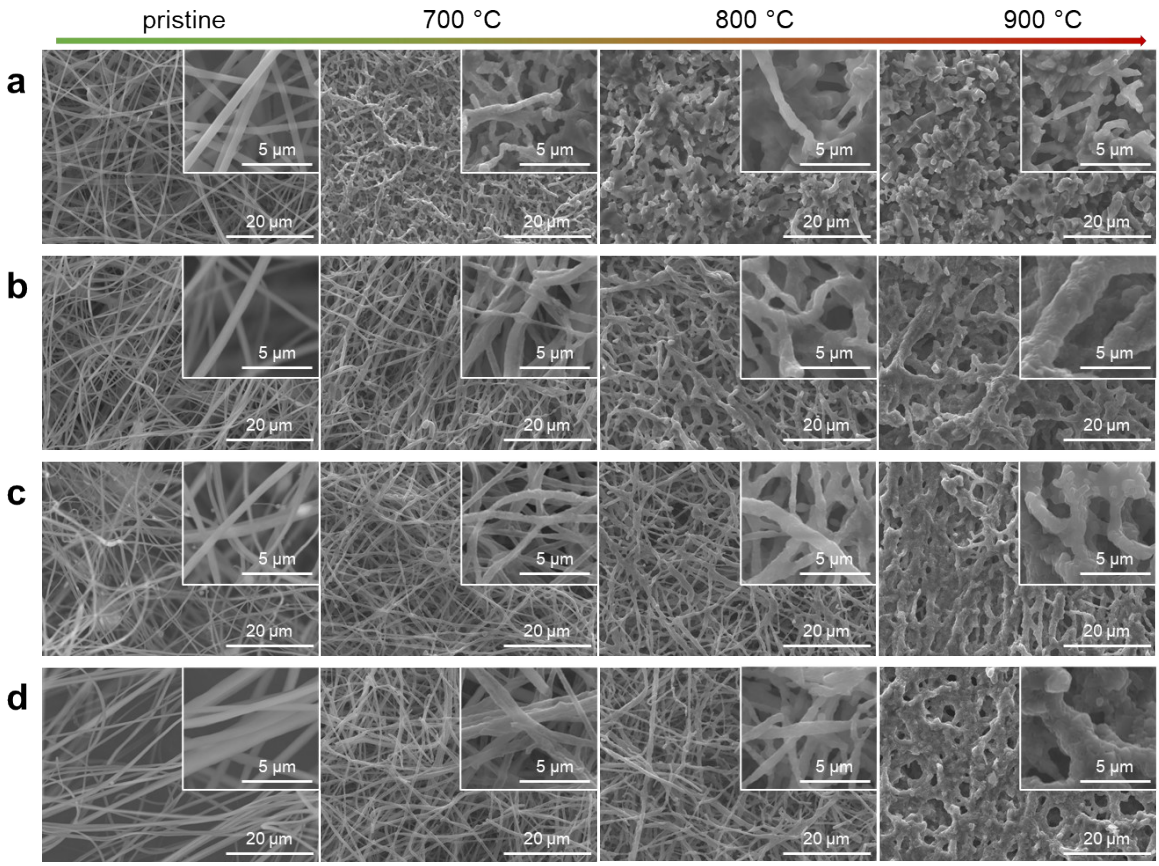

Figure S1. SEM images (a) LAGP, (b) LAGTP01, (c) LAGTP02 and (d) LAGTP03, as pristine and calcined at 700, 800 and 900°C.

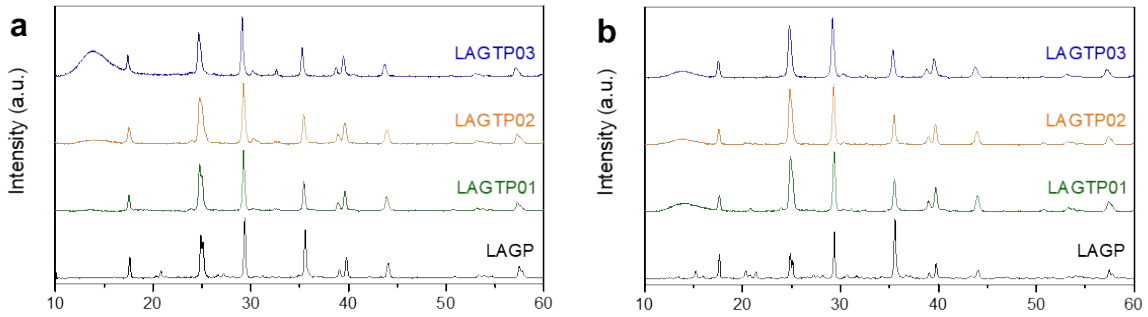

Figure S2 XRD patterns of LAGP, LAGTP01, LAGTP02 and LAGTP03 calcined at (a) 800 °C and (b) 900 °C.

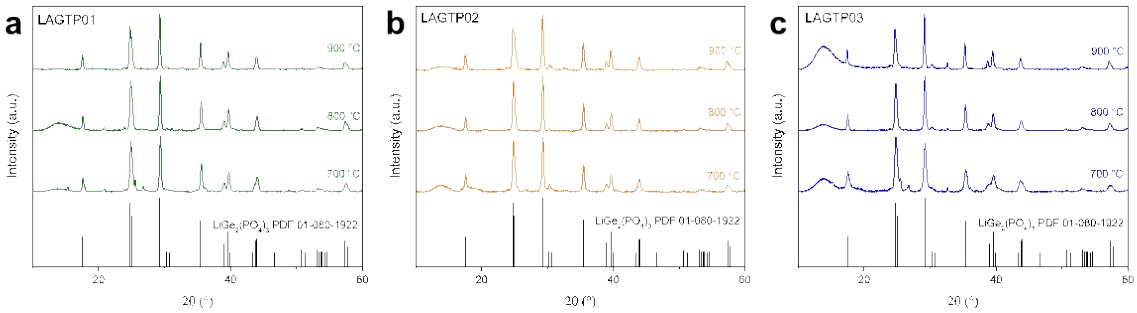

Figure S3 Evolution of the XRD pattern with the increase of calcination temperature for (a) LAGTP01, (b) LAGTP02 and (c) LAGTP03.

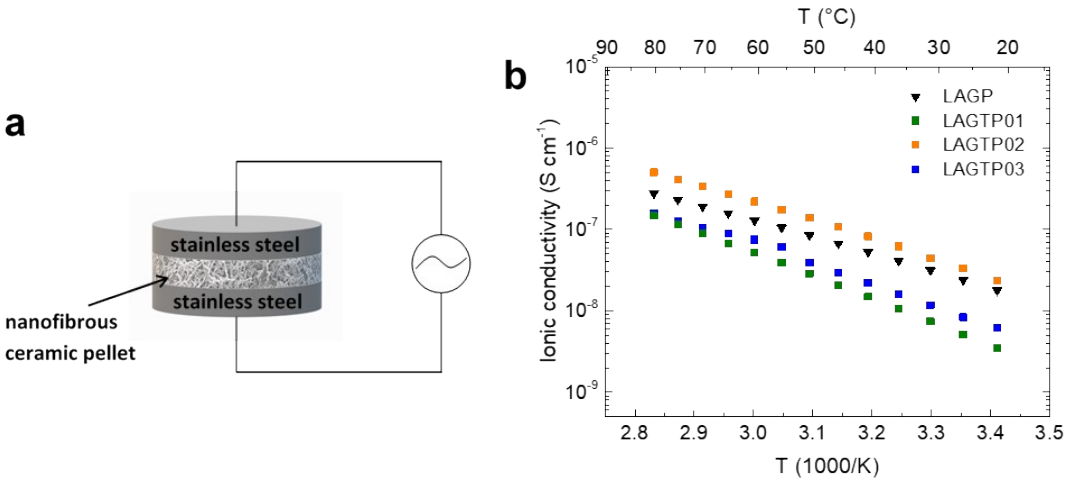

Figure S4. (a) Scheme of the setup used for EIS analysis of LAGTP nanofibrous pellets. (b) Arrhenius plot in a temperature range of 20-80 °C of LAGTP nanofibrous pellets compared to LAGP one.[1]

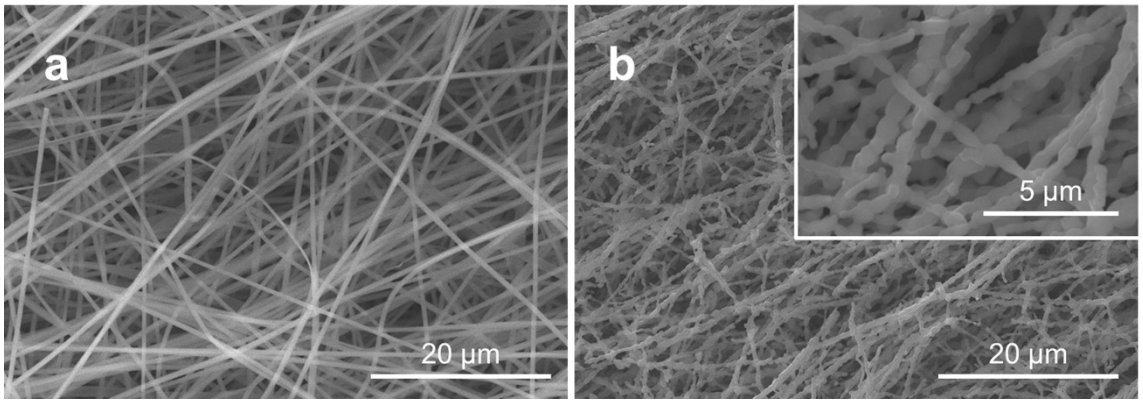

Figure S5. SEM images of (a) pristine and (b) calcined LATP fibers (high magnification details of the fibers in the inset)