

## Supporting Information

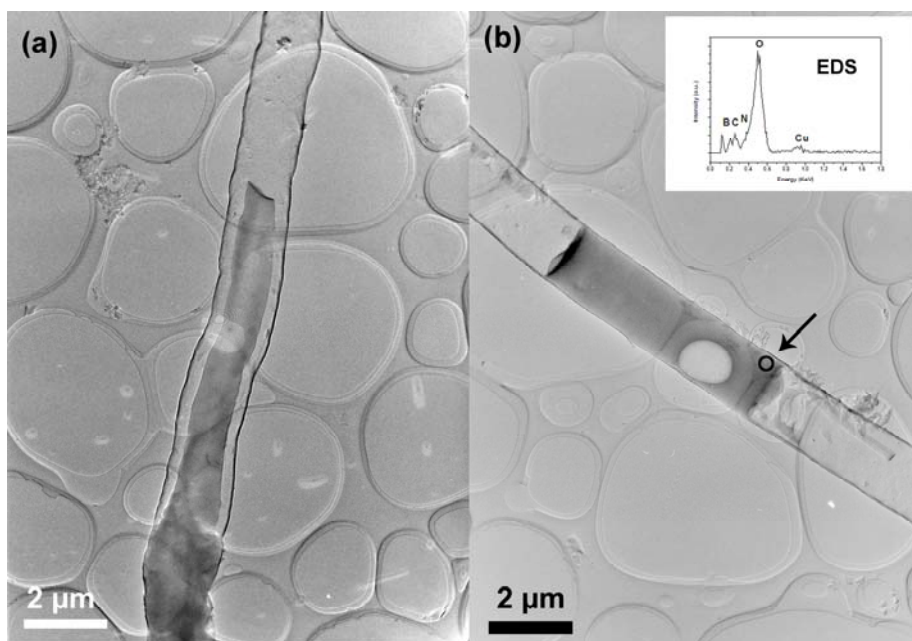
### **Thin-walled B-C-N ternary microtubes: From synthesis to electrical, cathodoluminescence and field-emission properties**

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**Figure S1** (a) and (b) TEM images of two representative BCN microtubes filled with some substance. The fillings are unstable to the electron beam irradiation, as shown in (b). (inset) EDS spectra taken from the unstable substance inside the tube, indicating that the fillings was enriched in B and O.

During the TEM observations, we noticed the inner walls of the microtubes accommodate some substance, which was unstable to the electron beam irradiation. We performed micro-EDS analysis of this unstable matter and the results indicated that the filling was enriched in B and O (The absence of the peaks from Li is due to the usage of a Be window in the EDS detector). Combine with the XRD results, the unstable fillings are composed of the lithium borate compounds. Referring to the  $\text{Li}_2\text{O}-\text{B}_2\text{O}_3$  phase diagram, a possible mechanism combining the vapor-liquid-solid and template self-sacrificing process is proposed for the microtube growth. Similar growth mechanism has also been reported in our previous paper related to the BN microtubes.<sup>1</sup>

#### References:

1. Y. Huang, Y. Bando, C. Tang, C. Zhi, T. Terao, B. Dierre, T. Sekiguchi and D. Golberg, *Nanotechnology* 2009, **20**, 085705.