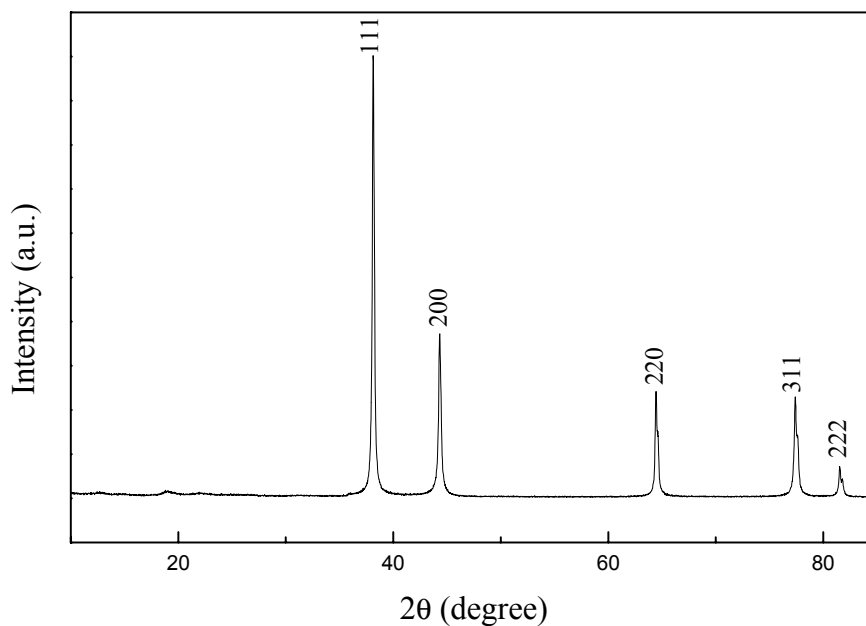


## Supporting Information

1. The following figure shows the XRD pattern of as-synthesized Ag/PPy nanocables, which indicates the fcc phase of silver, expect for the broad faint peaks at  $2\theta = 18.920^\circ$ , which indicate that the polymer of the as-prepared sample is amorphous.



2. Fourier transform infrared (FTIR) spectra showed the characteristic bipolaron bands at 1200 and 925  $\text{cm}^{-1}$  indicating the formation of PPy in its doped state. The peaks between 1650, 1540 and 1456  $\text{cm}^{-1}$  are assigned as fundamental vibrations of pyrrole rings. The peak at 3400  $\text{cm}^{-1}$  is assigned as N-H stretching vibration. This spectrum is nearly identical to that of the PPy oxidized by  $\text{FeCl}_3$  reported in our previous work, the only exception being the presence of an additional peak at 1380  $\text{cm}^{-1}$  due to the N-O stretch of  $\text{NO}_3^-$  counterion.

