Scheme 1: Schematic representation of the LbL UA electrochemical sensor
Figure 1. (A) Cyclic voltammetry of 5 mM potassium ferricyanide (0.5 M KCl) at (a) bare GCE, (b) Nafion modified GCE and (c) Nafion–MWCNT nanocomposite films modified GCE; (B) Representative amperometric I-t curves (obtained at +0.3 V vs Ag/AgCl) and corresponding calibration curves (inset) during successive 0.1 mM injections of uric acid at (a) bare and (b) Nafion–MWCNT composite film modified GCEs with HPU capping layer immersed in 65.55 mM PBS (pH 7.0). Note: In some cases, standard error bars are smaller than markers for average value (n = 6).
Figure 2: TEM (left) and SEM (right) images of pristine MWCNT (a,b), Nafion–MWCNT (c,d) and Nafion–MWCNT/b–CD (e,f) respectively.

Note: Double column figure
**Figure 3**: Characterization of various electrode materials by FTIR spectroscopy.
Figure 4: Representative amperometric I-t curve and corresponding calibration curve (inset) during successive 0.1 mM injections of uric acid at glassy carbon electrode modified with β–CD, coated with HPU, and immersed in 65.55 mM PBS (pH 7.0). Note: In some cases, standard error bars are smaller than markers for average value (n = 6).
Figure 5: (A) Representative amperometric I-t curve and corresponding calibration curve (inset) during successive 0.1 mM injections of uric acid at glassy carbon electrode modified with b–CD/Nafion–MWCNT and then coated with HPU. (B) Representative amperometric I-t curves and corresponding calibration curves (inset) during successive 0.1 mM injections of uric acid at glassy carbon electrodes; bare (a) and modified with Nafion–MWCNT (b), β–CD (c) and β–CD/ Nafion–MWCNT (d); each coated with HPU. (C) Sensitivity of GCE/Nafion–MWCNT/α–CD/HPU, GCE/Nafion–MWCNT/β–CD/HPU and GCE/Nafion–MWCNT/γ–CD/HPU electrochemical sensor towards the oxidation of UA. Solution conditions: 65.55 mM PBS (pH 7.0).

Note: In some cases, standard error bars are smaller than markers for average value (n = 6).
Figure 6: (A) Typical amperometric I-t curves of GCE/Nafion–MWCNT/β–CD/HPU electrochemical sensor during injections of common interferent species and UA and a graphical summary (inset) of selectivity coefficients for acetaminophen (AP), ascorbic acid (AA), NaNO₂, oxalic acid (OA), and glucose (Glu) at a) +0.65 and b) +0.30 V vs Ag/AgCl. (B) Response time ($t_{R-95\%}$) and sensitivity of GCE/Nafion–MWCNT/β–CD/HPU UA electrochemical sensor over a period of 8 days. Note: In some cases, standard error are smaller than markers for average value (n=8).