Figure S1. XRD patterns of Pd/TiO$_2$ and Pd-M/TiO$_2$ samples, (a) 1Pd/TiO$_2$, (b) 1Pd-5Fe/TiO$_2$, (c) 1Pd-5Co/TiO$_2$, (d) 1Pd-5Cu/TiO$_2$. 
Figure S2. Time-resolved DRIFT spectra showing accumulation of surface species over 1Pd-5Cu/TiO$_2$ catalyst at 150 °C obtained following switch from 2000 ppm H$_2$ + 200 ppm NO + 1.5% O$_2$ to a flow containing 200 ppm NO + 1.5% O$_2$.

Figure S3. Evolution of IR height of the surface species over 1Pd-5Cu/TiO$_2$ catalyst obtained following switch from 2000 ppm H$_2$ + 200 ppm NO + 1.5 vol% O$_2$ to a flow containing 200 ppm NO + 1.5 vol% O$_2$. 
Figure S4. Time-resolved DRIFT spectra showing accumulation of surface species over 1Pd-5Cu/TiO$_2$ catalyst at 150 °C obtained following switch from 200 ppm NO + 1.5% O$_2$ to a flow containing 2000 ppm H$_2$ + 200 ppm NO + 1.5% O$_2$.

Figure S5. Evolution of IR height of the surface species over 1Pd-5Cu/TiO$_2$ catalyst obtained following switch from 200 ppm NO + 1.5 vol% O$_2$ to a flow containing 2000 ppm H$_2$ + 200 ppm NO + 1.5 vol% O$_2$. 