Supporting Information

# Synergistic modification of $TiO_2$ with $Fe_2O_3$, $Fe_3O_4$, and CaO to boost photocatalytic NOx oxidation, selectivity, and storage efficiency under UV light

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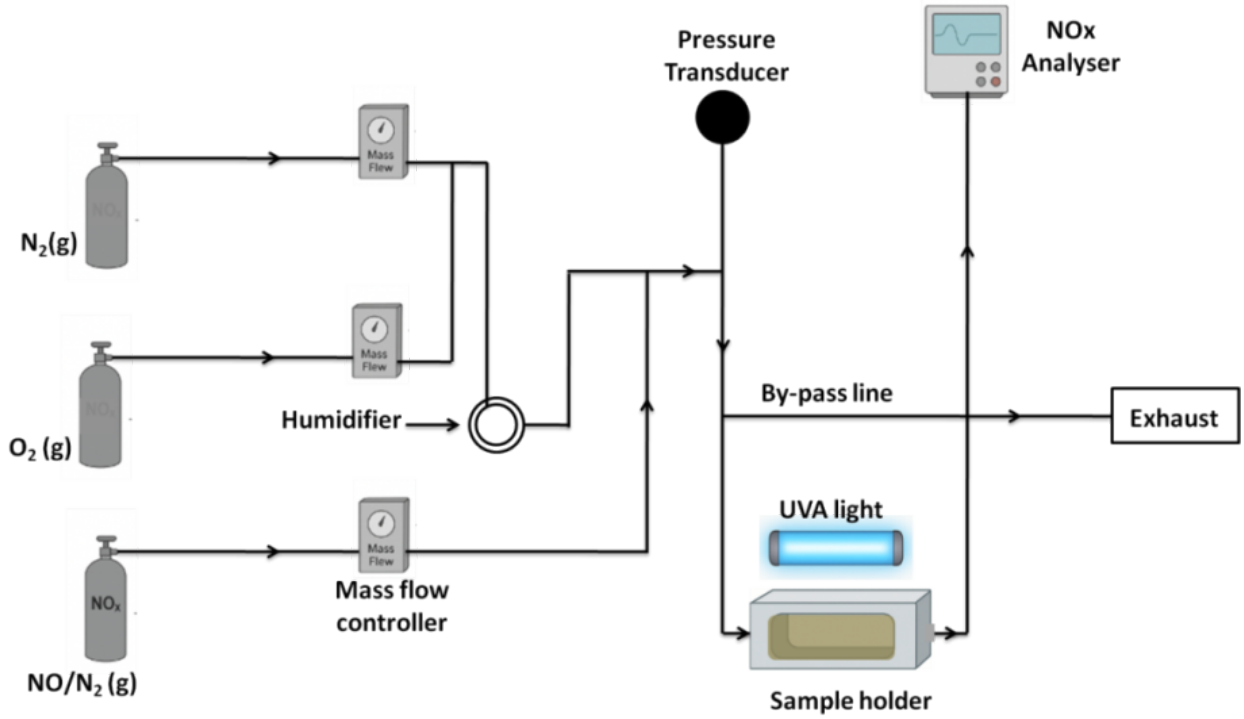


**Figure S1**: A photocatalytic flow reactor system.

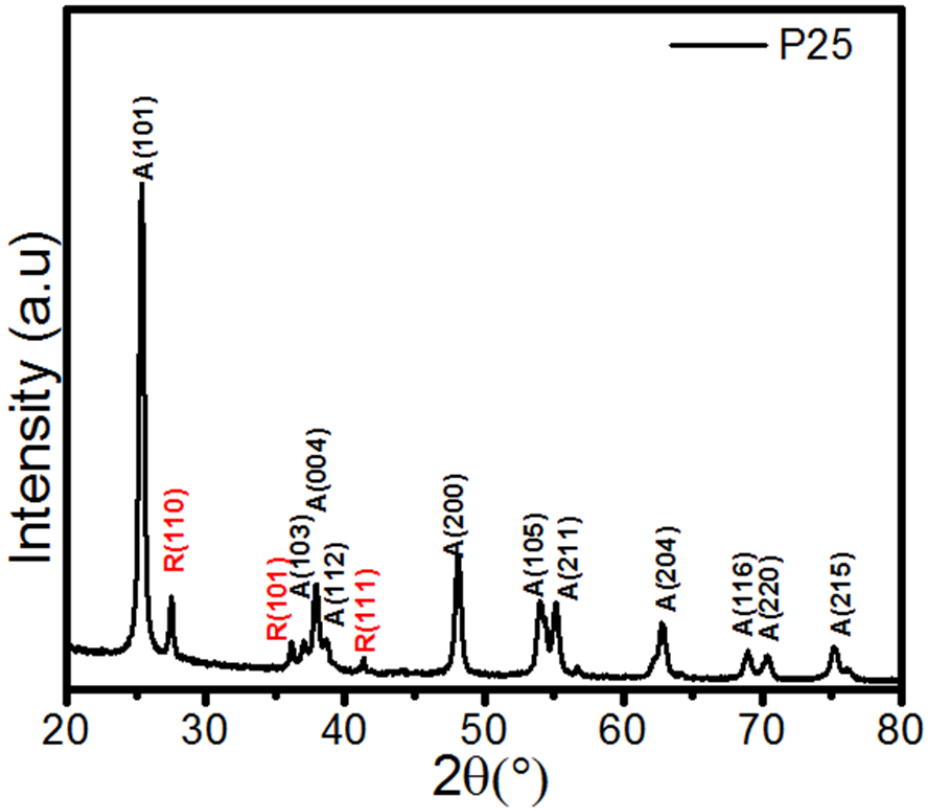


**Figure S2**: PXRD of P25

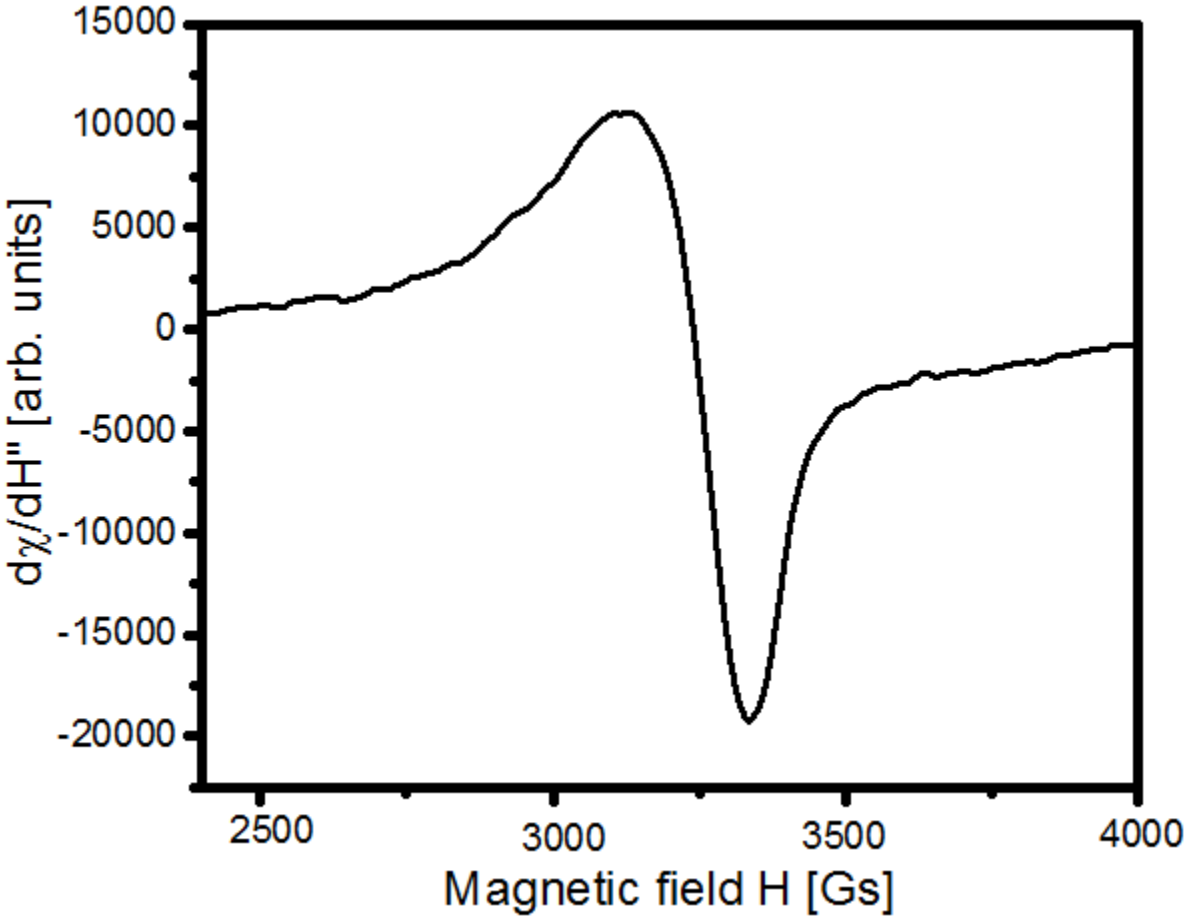


**Figure S3**: The EPR spectra of P25/$Fe_2O_3$ at room temperature.

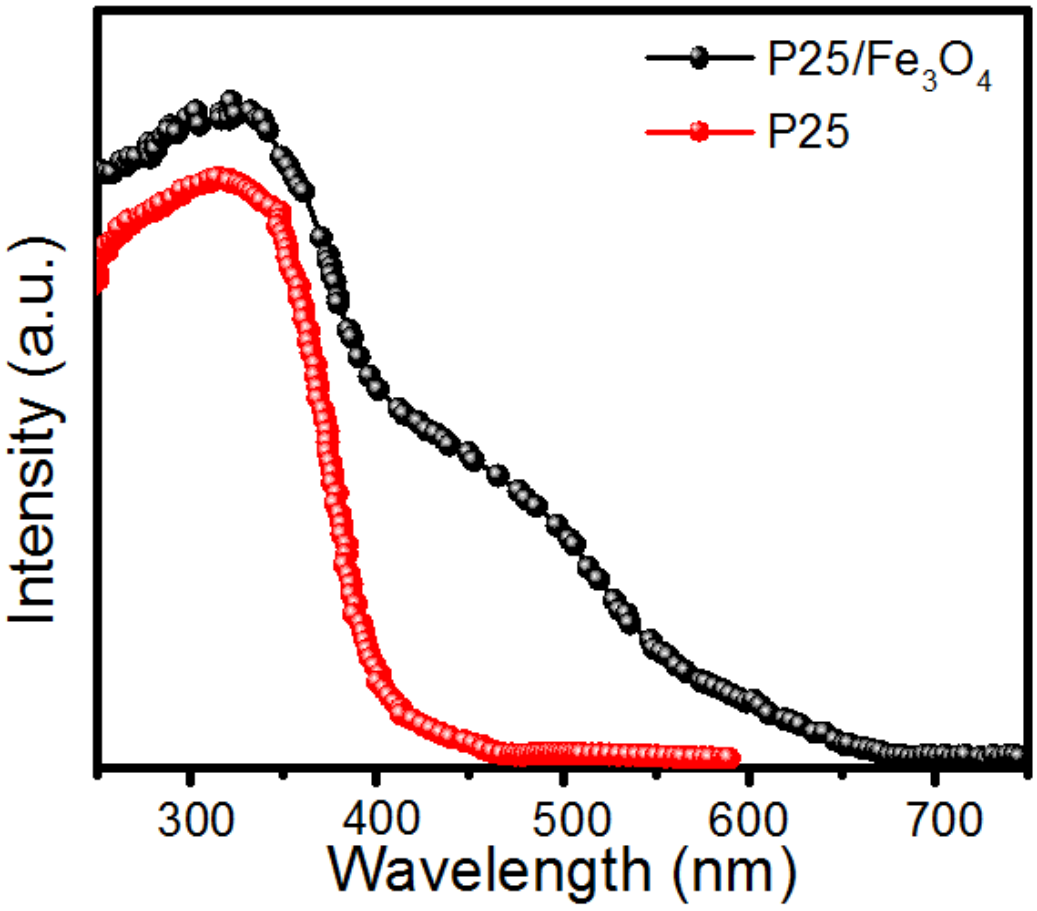


**Figure S4**: UV-visible diffuse reflectance spectra of P25/$Fe_3O_4$/CaO

**Table S1**: Representing NO Conversion, Mean NO conversion (%),Standard Deviation NO Conversion , Selectivity %, Mean Selectivity %, Standard Deviation Selectivity of all the P25, binary and ternary catalysts.

| Catalyst | NO(%)1 | NO(%)2 | NO(%)3 | MNO(%) | SDNO | SE(%)1 | SE(%)2 | SE(%)3 | MSE(%) | SDSE |
|---|---|---|---|---|---|---|---|---|---|---|
| **P25** | 38.94 | 38 | 37.11 | 38.01 | 0.91 | 34.08 | 33 | 31.98 | 33.02 | 1.05 |
| **P25/Fe2O3** | 43.18 | 42 | 40.78 | 41.98 | 1.20 | 85.79 | 84 | 82.28 | 84.02 | 1.75 |
| **P25/Fe2O3/CaO** | 48.34 | 47 | 46 | 47.11 | 1.17 | 99.72 | 98 | 95.82 | 97.84 | 1.95 |
| **P25/Fe3O4** | 40.06 | 39 | 38.49 | 39.18 | 0.80 | 49.87 | 49 | 47.92 | 48.93 | 0.97 |
| **P25/Fe3O4/CaO** | 50.18 | 49 | 47.83 | 49.00 | 1.17 | 96.36 | 94 | 92.07 | 94.14 | 2.14 |

NO (%) = NO Conversion %, MNO(%) = Mean NO conversion (%), SDNO= Standard Deviation NO Conversion , SE(%) = Selectivity % 1, MSE(%)= Mean Selectivity %, SDSE= Standard Deviation Selectivity