

## Chemical Doping of TiO<sub>2</sub> with Nitrogen and Fluorine and Its Support Effect on Catalytic Activity of CO Oxidation

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We investigated the effect of strong metal-support interaction (SMSI) and the role of electronic excitations at the interfaces by studying the effect of the support on catalytic activity of CO oxidation using Pt on doped & undoped TiO<sub>2</sub>. As a support, TiO<sub>2</sub> was synthesized via sol-gel process; chemically doped with N & F non-metal anions. The Pt/N-, Pt/F-, and Pt/undoped TiO<sub>2</sub> catalysts were fabricated by depositing Pt on spin coated TiO<sub>2</sub> films by arc plasma deposition technique. The CO Oxidation turnover rates of Pt/N- & Pt/F-doped TiO<sub>2</sub> were a factor of ~2.5 higher to Pt/undoped TiO<sub>2</sub> was observed. We attribute the enhancement of activity with O<sub>2</sub> vacancies formed during the doping process and the facile charge transfer at the metal-oxide interfaces. Alternatively, lower oxidation states of Pt/doped TiO<sub>2</sub> due to enhanced charge transfer can result in higher catalytic activity.