

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

High photocatalytic activity of immobilized non-crystalline nanometric titanium oxide: key role of interface¹ ANDREI KANAEV, LIMHP, UPR1311 CNRS, MOHAMED BENMAMI, LIMHP, University Paris-Nord, KHAY CHHOR, LIMHP, University Paris-Nord, INORGANIC NANOMATERIALS TEAM — Thinnest coatings prepared by *chemical* deposition of *non-crystalline* nanometric titanium oxide particles (2R=5.0 nm) show important photocatalytic activity, which can be higher than that of the reference sample, crystalline *Degussa* P-25 TiO₂. We describe an original method of the sol particles preparation and immobilization on complex supports in the sol-gel reactor. The effect of the coating thickness on its photocatalytic activity is studied. We show that the very first layer of the deposited nanoparticles possesses both high mechanical stability and the highest efficiency. We describe main features on the nanocoatings behavior in photocatalysis (gas-phase trichloroethylene degradation) and show that their internal efficiency increases with the decrease of the deposited mass. These results suggest a new approach to the active component design, while earlier non-crystalline TiO₂ has been considered inactive.

¹This work is supported by the COST D19 Action of European Commission

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Date submitted: 01 Dec 2005

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