TiO_2 nanoparticle - based photocatalysts: Elaboration and effectiveness

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The development of effective functional nanoparticle-based materials is a long-lasted trend in the environmental photocatalysis. This work requires a detailed understanding of elementary processes controlling the energy and charge transfer towards the pollutant decomposition, between which the electron transport to the surface active sites after photoexcitation has a particular importance, as defines the material energetic efficiency.

In this talk, an overview will be given on the TiO_2 nanoparticle based photocatalysts elaboration, electron transport and pollutants decomposition. The activity of composite and cation-doped catalysts with UVA lamp and sunlight illuminations will be discussed.