OPTIMIZATION OF PHOTOPRODUCTION OF NH_3 FROM SEMICONDUCTOR BASED CATALYSTS

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Photocatalytic activity of metal doped TiO_2 catalysts for N_2 reduction was found to depend on a member of variables. The following factors were studied in order to determine the optimum conditions; dopant level, doping temperature and heating time. It was found that conditions which favour surface doping of the TiO_2 lattice by Mg^{2+} give higher quantum yields compared to lattice doping. The importance of Ti^{3+} in the photocatalytic properties of TiO_2 has been postulated. Photoreduction of N_2 by Ti^{3+} in both homogeneous and heterogeneous media support this hypothesis.