

TiO₂ Electron-Hole Recombination Equation

$$[e]_t = \frac{[e]_0}{1 + [e]_0 k_r t} + BL$$

$[e]_0$ = electron concentration at time zero

k_r = second order rate constant for electron-hole recombination

BL = baseline

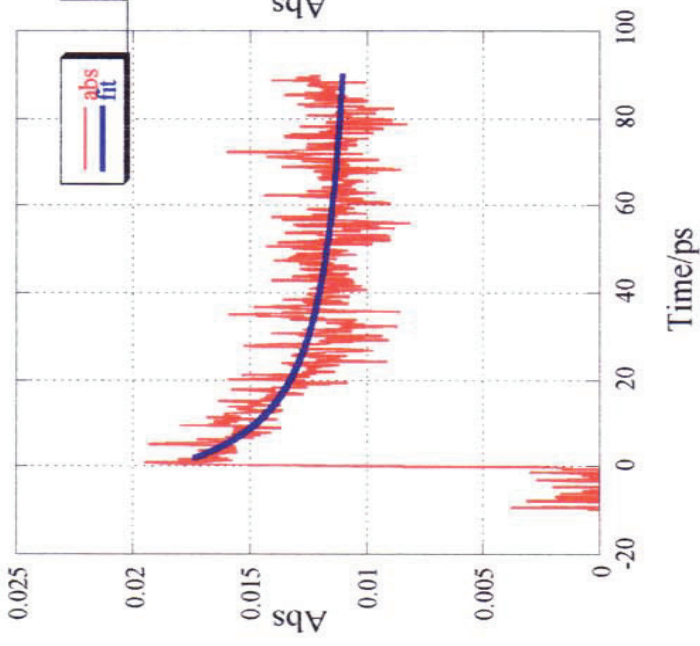
TiO₂ electron-hole recombination rate constant comparison

	P25	PTA-sol	TO-sol	Idemitu
k_r (x 10 ¹² cm ³ s ⁻¹)	9.53	1.05	2.85	17.3

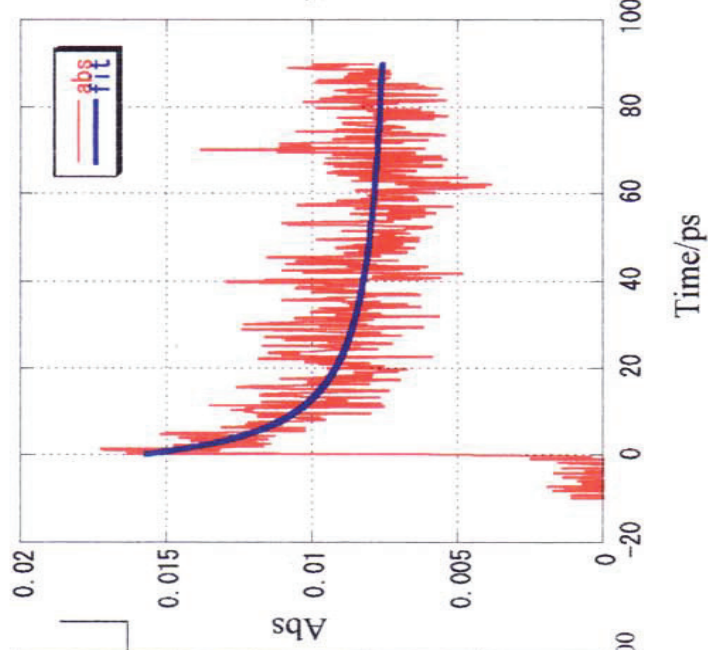
The smaller of rate constant (k_r), the more difficult for electron-hole recombination to occur, therefore higher photocatalytic activity is observed.

TiO₂ Electron-Hole Recombination Dynamics

Degussa P25



Idemitsu TiO₂



KON TO Sol

