TEMPERATURE DEPENDENCE OF PHOSPHORESCENCE FOR TITANIUM DIOXIDE – BENZOPHENONE HETEROGENEOUS SYSTEM

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S u m m a r y

The heterogeneous two-component system on the basis of titanium dioxide TiO_2 (anatase structure) nanoparticles with Fe-modified surface, loaded into benzophenone (BP), has been studied in the temperature range 4.2– 180 K by the phosphorescence method. The presence of two BP spectral band series with different temperature dependences of their spectral parameters has been observed. The analysis of the obtained data allowed us to draw conclusion about a simultaneous realization of BP two structural modifications, namely amorphous and crystalline phases, in the studied sample. The disordered amorphous structure is formed in thin (less than 0.05– 0.1 μm) near-surface layers of BP and results from destruction of long-range ordering in this compound due to the influence of the strongly defective TiO_2 surface.