

Photocatalytic Reaction $\text{NO} + \text{CO} + h\nu \rightarrow \text{CO}_2 + 1/2 \text{N}_2$

Activated on ZnO_{1-x} in UV-VIS Region

*Ilya V. Blashkov, Lev L. Basov, Andrey A. Lisachenko**

Department of Physics, Saint-Petersburg State University,
ul. Ul'yanovskaya, 1, Saint-Petersburg, 198504, Russia.

*e-mail: a.lisachenko@spbu.ru

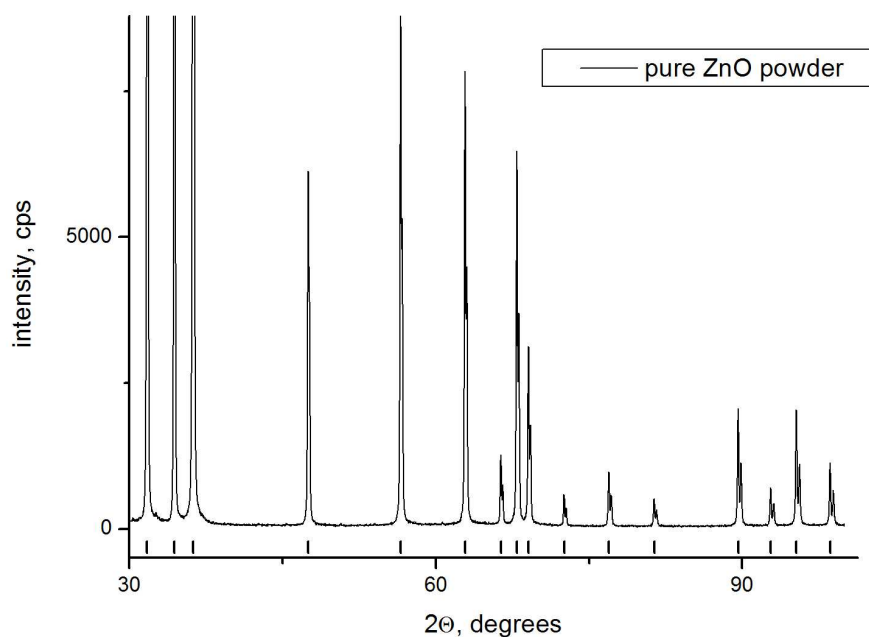


Figure S1. X-ray diffraction analysis (XRD) of ZnO OSCH 12-2.

The XRD analysis showed that the sample is composed of 100% wurtzite phase. In Figure S1, the wurtzite phase reflections are shown with short bars above the abscissa. According to the differential ultrasonic spectroscopy (UDS) analysis (Figure S2), the sample particles are conglomerates of crystallites. The dimensions of single crystallites, according to SEM, are above 100 nm (Figure S3). The sample area according to BET (N_2 adsorption) is 20.33 m^2/g .

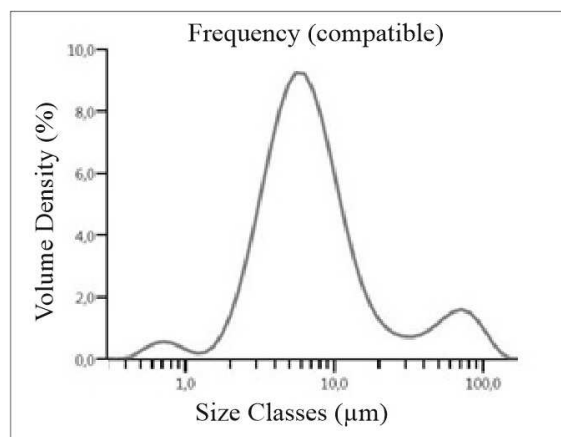


Figure S2. Size distribution of the conglomerates of ZnO OSCH 12-2.

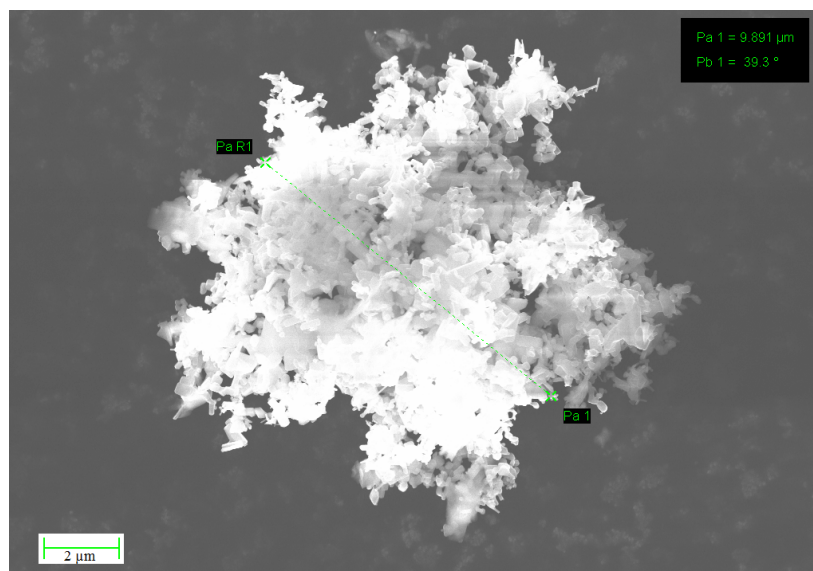


Figure S3. SEM image of ZnO.

The following illuminators were used to irradiate the samples: a mercury lamp DRSh-250, a xenon lamp (Osram XBO 150W/4). Separate spectral lines were singled out with standard glass filters produced by the LOMO company (St.-Petersburg) using a thermal water filter. The intensity of the incident monochromatic radiation (measured by a photocell F17 calibrated by a thermopile) was of the order of $\approx 10^{15}$ [photons $\text{cm}^{-2} \text{s}^{-1}$], see Table S1.

	UFS6+ BS7 365 nm	UFS1+ BS8 380 nm	JS10+ PS13 404 nm	JS11+ SS15 436 nm	JS12+ SS5 465 nm	JS17+SZS20+ SZS21 490 nm	JS18+ PS7 546 nm	OS13+ ZS7 578 nm
$I_{\text{incident}}, \times 10^{15} \text{ photons s}^{-1} \text{ cm}^{-2}$	6.07 ± 0.04	2.48 ± 0.05	1.55 ± 0.04	3.42 ± 0.05	2.5 ± 0.06	1.34 ± 0.07	7.96 ± 0.16	5.65 ± 0.12

Table S1. The used combinations of light filters for separating the spectral lines of the DRSh-250 mercury lamp and the Osram XBO 150W/4 xenon lamp, and the intensities of the radiation incident on the sample.