

Room Temperature UV Lasing from Nano-structured ZnO Thin Films

Prof. Z. K. Tang & Prof. G. K. L. Wong were conferred the 2003 State Natural Science Award (SNSA), second class, for their discovery of ultraviolet lasing at room temperature from nano-structured ZnO films.



Based on the principle of quantum size effect of excitons in nanostructures, intense UV lasing has been observed at room temperature from nano-structured ZnO thin films (see Fig. 1). Fig. 2 demonstrates the UV lasing action from a ZnO film. The lasing threshold is only 24 kW/cm^2 , much lower than the threshold reported for GaN thin crystalline films.

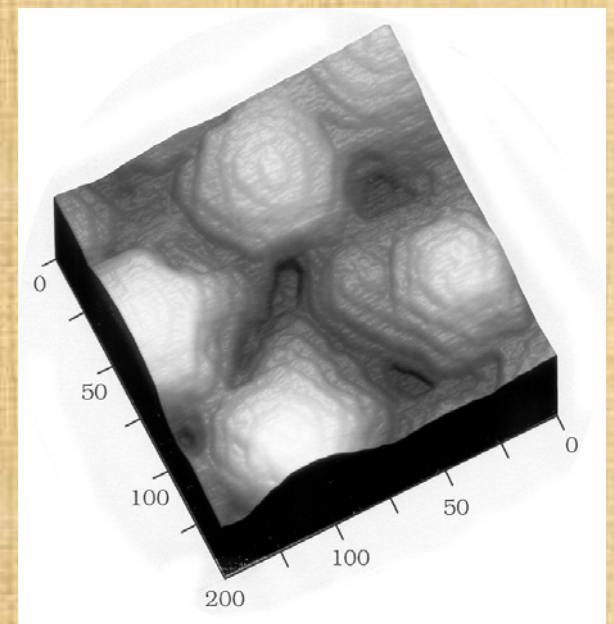


FIG. 1. AFM image of nano-structured ZnO thin film



FIG. 2. Lasing action from a nano-structured ZnO thin film

This research work has attracted worldwide attention and triggered renewed interests in ZnO research. Fifteen papers published from the project have been cited more than 600 times altogether, including the two pioneer papers, *Appl. Phys. Letters*, 72, 3270 (1998) and *Solid State Commun.* 103, 459 (1997), which have been cited 302 and 202 times, respectively.

党和国家领导人 2004年2月20日于北京人民大会堂
接见二〇〇三年度国家科学技术奖励大会代表



The Chinese President Hu Jintao and the Premier Wen Jiabao presented certificates to the award recipients at a ceremony held in Beijing on 20 February 2004.

The SNSA is China's most prestigious award in the field of natural sciences. In 2003, 28 projects were short listed from more than 100 proposals. Only one first-class SNSA award and 18 second-class awards were presented.