



THE CHINESE UNIVERSITY OF HONG KONG

Department of Physics

COLLOQUIUM

Photocatalytic Nanomaterials

by

Professor Jimmy Chai-mei YU

Department of Chemistry and Environmental Science Programme
The Chinese University of Hong Kong

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Time: 4:00 - 5:00 p.m.

Place: Science Center L2, CUHK

(Light refreshments will be served 20 minutes prior to the colloquium.)

ALL INTERESTED ARE WELCOME

Abstract

Photocatalysis is an emerging technology for environmental remediation. When anatase TiO₂ is illuminated by UV, it initiates a series of chemical reactions to generate hydroxyl radicals. These radicals can oxidize most contaminants and turn toxic compounds into environmentally acceptable products. A problem with titanium dioxide is that it requires UV for excitation. When sunlight is used as an excitation source, the efficiency of photocatalysis drops significantly. The development of more effective photocatalysts is therefore critical in the commercialization of this pollution treatment technology. Several strategies for photocatalytic activity enhancement, including noble metal sensitization, non-metal doping, and the inclusion of mesopores have been developed. Examples will be given in this presentation to demonstrate the potential of the enhanced photocatalysts in pollution treatment and disinfection.

References

1. J.C. Yu, X.C. Wang, X.Z. Fu, *Chem. Mater.* **16**, 1523 (2004).
2. J.C. Yu, X.C. Wang, L. Wu, W.K. Ho, L.Z. Zhang, G.T. Zhou, *Adv. Funct. Mater.* **14**, 1178 (2004).
3. X.C. Wang, J.C. Yu, Y.D. Hou, X.Z. Fu, *Adv. Mater.* **17**, 99 (2005).
4. M.S. Mo, J.C. Yu, L.Z. Zhang, S.K.A. Li, *Adv. Mater.* **17**, 756 (2005).
5. X.C. Wang, J.C. Yu, C.M. Ho, Y.D. Hou, X.Z. Fu, *Langmuir* **21**, 2552 (2005).
6. W.K. Ho, J.C. Yu, J.G. Yu, *Langmuir* **21**, 3486 (2005).
7. X.C. Wang, J.C. Yu, H.Y. Yip, L. Wu, P.K. Wong, S.Y. Lai, *Chem.-Eur. J.* **11**, 2997 (2005).
8. X.C. Wang, J.C. Yu, C.M. Ho, A.C. Mak, *Chem. Commun.* 2262 (2005).
9. W.K. Ho, J.C. Yu, S.C. Lee, *Chem. Commun.*, 1115 (2006).
10. J.C. Yu, G.S. Li, X.C. Wang, X.L. Hu, C.W. Leung, Z.D. Zhang, *Chem. Commun.*, 2717 (2006).
11. J.C. Yu, W.K. Ho, J.G. Yu, H.Y. Yip, P.K. Wong, J.C. Zhao, *Environ. Sci. Technol.* **39**, 1175 (2005).
12. X.C. Wang, J.C. Yu, Y.L. Chen, L. Wu, X.Z. Fu, *Environ. Sci. Technol.* **40**, 2369 (2006).

Enquiries: 2609 6339