

ZnO Nanostructures Doped with Various Chloride Ion Concentrations for Efficient Photocatalytic Degradation of Methylene Blue in Alkaline and Acidic Media

Razan A. Alshgari ¹, Zaheer Ahmed Ujjan ^{2,*}, Aqeel Ahmed Shah ³, Muhammad Ali Bhatti ⁴, Aneela Tahira ⁵, Nek Muhammad Shaikh ², Susheel Kumar ², Mazhar Hussain Ibupoto ⁶, Amal Elhawary ⁷, Ayman Nafady ¹, Brigitte Vigolo ⁸ and Zaffar Hussain Ibhipoto ^{9,*}

- ¹ Department of Chemistry, College of Science, King Saud University, Riyadh 11451, Saudi Arabia
 - ² Institute of Physics, University of Sindh Jamshoro, Jamshoro 76080, Pakistan
 - ³ Department of Metallurgy, NED University of Engineering and Technology Karachi, Karachi 75270, Pakistan
 - ⁴ Institute of Environmental Sciences, University of Sindh Jamshoro, Jamshoro 76080, Pakistan
 - ⁵ Institute of Chemistry, Shah Abdul Latif University Khairpur Mirs, Khairpur Mirs 66020, Pakistan
 - ⁶ Department of Zoology, Shah Abdul Latif University Khairpur Mirs, Khairpur Mirs 66020, Pakistan
 - ⁷ Department of Chemistry and physics, Faculty of Education, Alexandria University, Alexandria 21500, Egypt
 - ⁸ College of Natural Resources and Sciences, Jean Lamour Institute, Université de Lorraine, F-54000 Nancy, France
 - ⁹ Institute of Chemistry, University of Sindh Jamshoro, Jamshoro 76080, Pakistan
- * Correspondence: zaheer.ujjan@scholars.usindh.edu.pk (Z.A.U.); zaffar.ibhupoto@usindh.edu.pk (Z.H.I.)

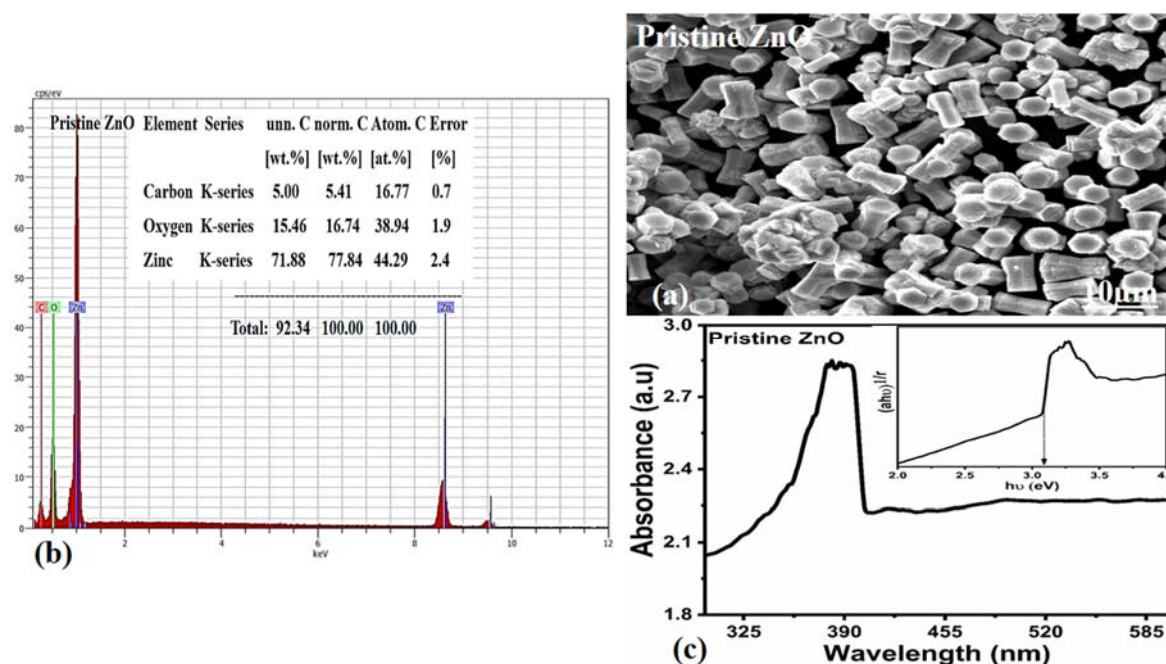


Figure S1. SEM image of pure ZnO, (b) EDX of pure ZnO, (c) UV-visible absorbance spectrum of pure ZnO, inset show the optical band gap.