

Pyrene-benzothiadiazole-based Polymer/CdS 2D/2D Organic/ Inorganic Hybrid S-scheme Heterojunction for Efficient Photo- catalytic H₂ Evolution

Ruiqi Gao¹⁺, Huan He¹⁺, Junxian Bai¹, Lei Hao¹, Rongchen Shen^{1*}, Peng Zhang², Youji Li³ and Xin Li^{1*}

¹Institute of Biomass Engineering, Key Laboratory of Energy Plants Resource and Utilization, Ministry of Agriculture and Rural Affairs, South China Agricultural University, Guangzhou 510642, China

²State Centre for International Cooperation on Designer Low-Carbon & Environmental Materials (CDLCEM), School of Materials Science and Engineering, Zhengzhou University, Zhengzhou 450001, China

³College of Chemistry and Chemical Engineering, Jishou University, Jishou 416000, Hunan, China

*Corresponding authors. Emails: Xinli@scau.edu.cn(X. Li) and shenrongchenscau@163.com (R. Shen)

*These authors contributed equally to this work

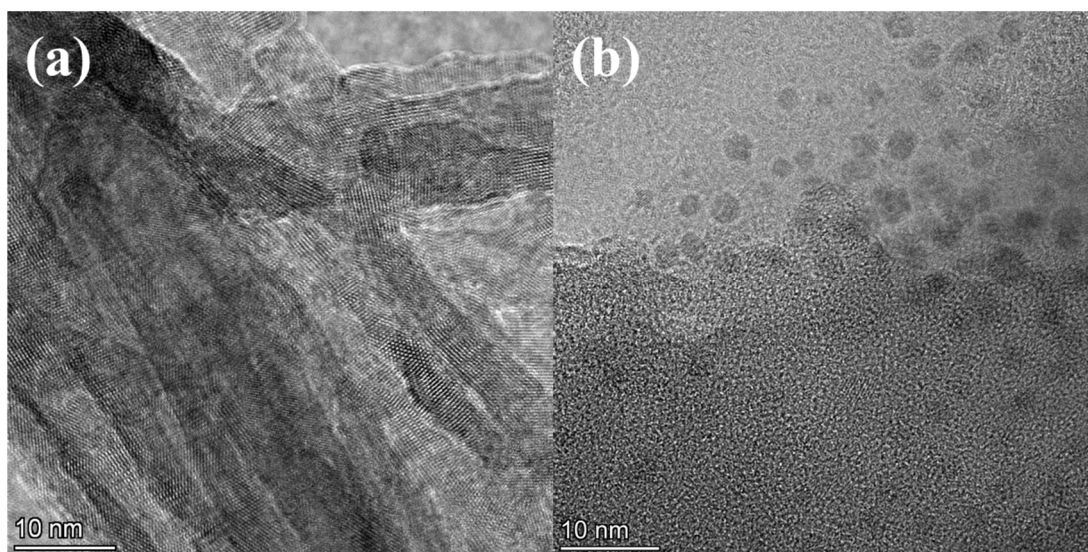


Figure S1. HRTEM images of (a) CdS and (b) PBBP.

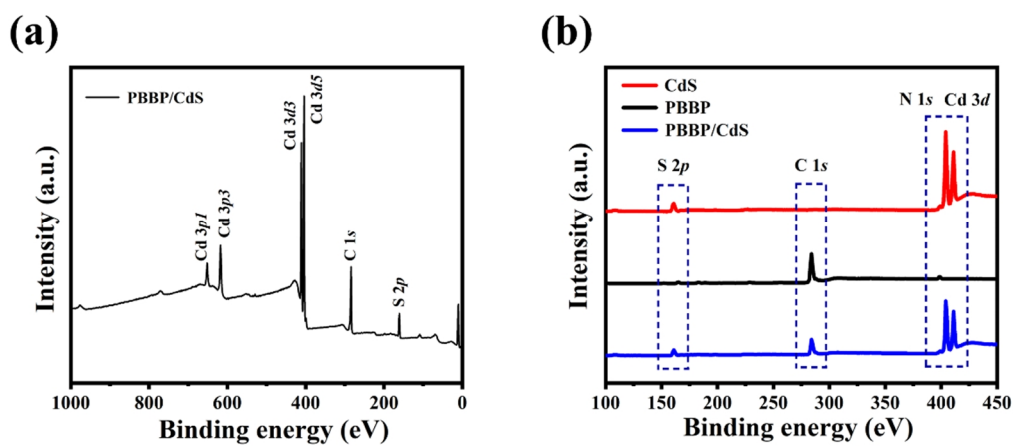


Figure S2. (a) XPS spectra of PBBP/CdS; (b) XPS survey of samples

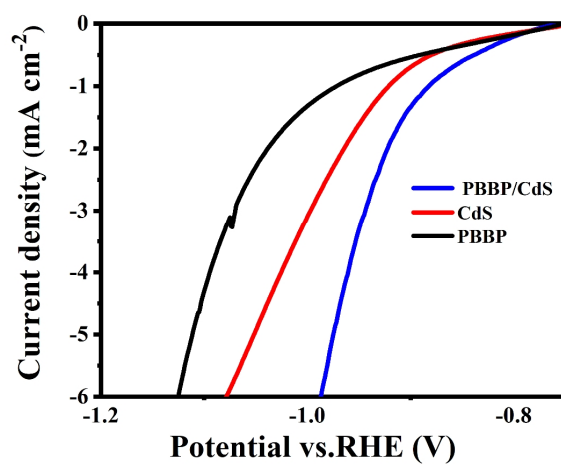


Figure S3. Polarization curves of CdS, PBBP and PBBP/CdS.

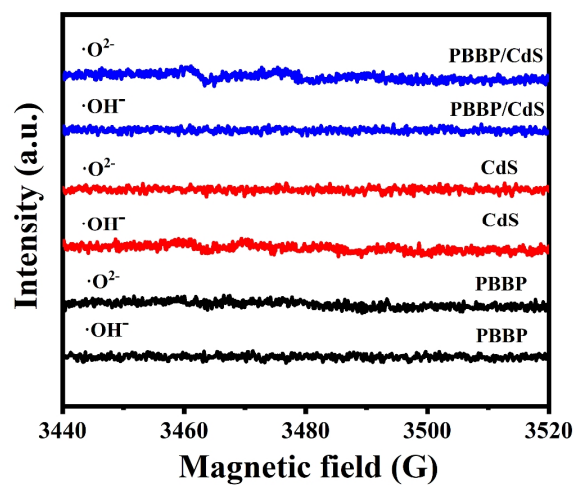


Figure S4. ESR spectra of CdS, PBBP, and PBBP/CdS in the dark.

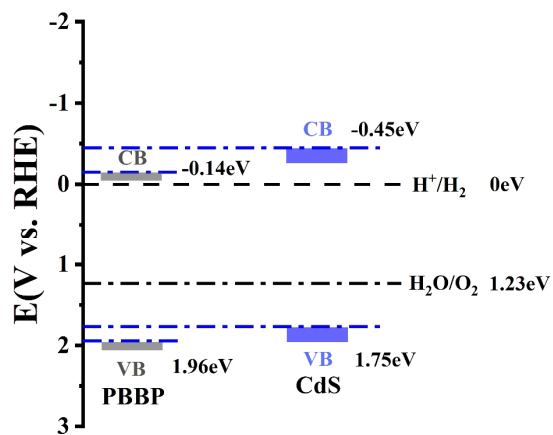


Figure S5. Band structures of PBBP and CdS from the result of UPS.

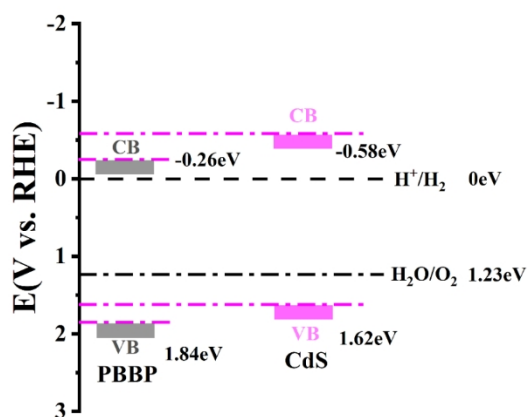


Figure S6. Band structures of PBBP and CdS from the result of VB-XPS.