ZnFe₂O₄@Cu-MOF催化剂的制备及其 光催化性能研究

- ZnFe ₂ O ₄	$ZnFe_2O_4$ /SBA - 15 ¹⁹ $ZnFe_2O_4$	ZnFe₂O₄/SBA-15
	ZnFe₂O₄@Cu-MOF	
ZnFe ₂ O ₄ @Cu-MOF	MO	
ZnFe ₂ O ₄ @Cu-MOF N	10	
1		
-		
7-5-0-00-0		
	/DF. FI-IR XRD SEIVI IG	
	WD	
ZnFe₂O₄@Cu-MOF		
20mL 4n	nmol Zn CH ₃ COO , 2H,O 6mmol Fe NO _{3 3} 9H,O	А
10mL 9mmol	B B	А
30min. 50mL	180 18h	
500 5h	ZnFe ₂ O ₄	
0.557g Cu NO _{3 2} 3H ₂ O 0	0.2555g 0.4404g	15mL
10mL 5mL DMF		
90 24h	DMF	60
10h 0 Cu-N	/OF.	
ZnFe ₂ O ₄ @Cu-MOF		
ZnFe ₂ O ₄ @Cu-MOF	$ZnFe_2O_4$ Cu-MOF 4 1	

BBZM-111 380 ~ 800nm			350W			FTO	
		Ag	/AgCl	0.2mol·L-1	Na_2SO_4		
		Mott- S	chottky				
1.4							
		MO					
	7mg	35mL	10mg/L	MO			-
			BL- GH>	(-V			
	10min	5mL			UV - 2600		
	MO	464m	10mg/LMO	0		MO	
	1	20					
			= (1) × 100%			1
BO		FDTA - 2Na	SN	IPA	0.	h⁺ e⁻	
OH-							
0.1					MO		
2							
	FT-IR	XRD SEM TO	SA				
ZnFe ₂ C	0₄@Cu-MOF						

2.1

 $\label{eq:2nFe_20_4} \ \ Cu-MOF \qquad \ \ ZnFe_2O_4@Cu-MOF$ 2 a 544cm⁻¹ ZnFe₂O₄ Fe-O 430cm⁻¹ Zn-O ²¹ Cu- MOF 1565 ~ 1680cm⁻¹ 1370 ~ 1455cm⁻¹ 725cm⁻¹ 22 480cm⁻¹ Cu- O Cu-O Cu-MOF Cu- MOF $ZnFe_{_2}O_{_4}@Cu\text{-}MOF$ Cu-MOF



2 b ZnFe₂O₄ 30.0° 35.4° XRD 42.9° 53.3° 56.7° 62.4° ZnFe₂O₄ 220 311 400 ¹⁵ Cu-MOF XRD 2 = 6.6° 422 511 440 JCPDS 89-1010 9.3° 11.5° 13.3° 14.5° 18.9° 20.1° 25.8° 29.3° Cu- MOF 200 220 222 CCDC 280092 ²³ Cu- MOF 400 420 440 442 731 751 ZnFe₂O₄@Cu-MOF Cu- MOF



b 3 ZnFe₂O₄ a Cu-MOF b ZnFe₂O₄@ Cu-MOF c



342

Cu- MOF

4

ZnFe₂O₄@Cu-MOF

100 ~ 340





7 b





ZnFe₂O₄ Cu-MOF

480

b



$ZnFe_2O_4@Cu-MOF$	MO	10		ZnFe ₂ O ₄
Cu- MOF	e^{-} h ⁺ . Cu- MOF LUMO ZnFe ₂ O _{4 CB}		e	Cu- MOF
LUMO	$\label{eq:2.1} ZnFe_2O_4 \qquad \ \ CB CU-MOF HOMO \qquad \qquad ZnFe_2O_4$	VB	h⁺	Cu-MOF
HOMO	ZnFe₂O₄ _{vB} e⁻h⁺ ZnFe₂O₄		· w	, 8

MO CO_2 H₂O

3

ZnFe

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Preparation and Photocatalytic Performance of ZnFe₂O₄@Cu-MOF

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Abstract

Keywords ZnFe₂O₄ Cu-MOF Methyl orange Photocatalysis Degradation