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研 究 组：1502 组

学科专业：工业催化

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	/	
2015.09.28 2016.09.27	/	CSC
2012.09.01 2017.01.05	/	
2010.09.01 2012.07.01	/	
2006.09.01 2010.07.01	/	

	SERS Ag

SP-SERS 4-ATP
4-ATP
N_2
532 nm 633 nm 4-ATP SERS “b_2”
“b_2” DMAB
/ 4-ATP-DMAB
4-ATP DMAB
O_2 H_2O
“ ” H_2O H_2

SP-SERS 4-NTP
4-NTP N_2
O_2 O_2
“ ” 4-NTP DMAB
4-ATP “b_2” DMAB
SERS 4-NTP
SP-SERS ν(C-C) SERS
4-NTP
DMAB 4-ATP
SP-SERS N719
488 nm 532 nm N719 SERS 1545 cm^{-1}
ν(C-C) 4-NTP
N719 SERS N719
N719

	1					
	1			65	2017.01-2020.12	
	2			75	2016.01-2019.12	
	3	SERS		85	2015.01-2018.12	
	2					
					/ /	
	1	Laser wavelength-and power-dependent plasmon-driven chemical reactions monitored using single particle surface enhanced Raman spectroscopy	Chemical Communications	6.83	2013, 49(33): 3389-3391	1
	2	Amino acid-assisted synthesis of hierarchical silver microspheres for single particle surface-enhanced Raman spectroscopy	Journal of Physical Chemistry C	4.77	2013, 117(19): 10007-10012	1
	3	Mechanistic understanding of surface plasmon assisted catalysis on a single particle: cyclic redox of 4-aminothiopheno	Scientific Reports	5.58	2013, 3, 2997	1
	4	In situ surface - enhanced Raman spectroscopy study of plasmon - driven catalytic reactions of 4 - nitrothiophenol under a controlled atmosphere	ChemCatChem	4.73	2015, 7(6): 1004-1010	1
	5	Recent progress in the applications of graphene in surface-enhanced Raman scattering and plasmon-induced catalytic reactions	Journal of Materials Chemistry C	5.07	2015, 3(35): 9024-9037	1
	6	Recent advance in laser-induced chemical reactions investigated by in-situ Raman spectroscopy		2.43	2017, doi: 10.1360/N032016 - 00241	1
	3					
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	1			ZL 2013 1 0010907.1	2014-09-03	5
	4					
	1				2015	1
	2	GE		GE	2013	1
	3				2013	1
	4				2014	1

1 **2**

3

1

C-H 439 kJ/mol

C-H 389 kJ/mol

2

3

65% 800-1000 °C 25%

30 bar

4

Mo Fe

5

6

WO_3

Taylor $La\text{-}WO_3$ 90 °C

7 Gondal

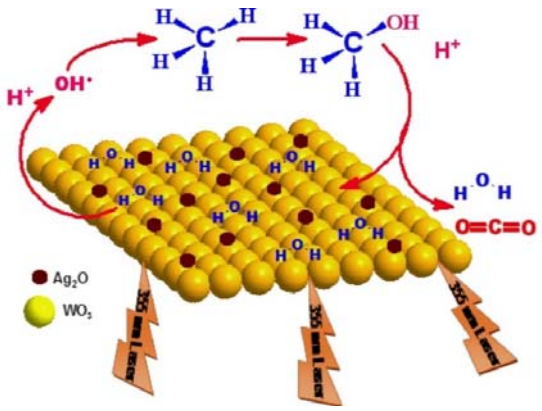
8

WO_3

Ag^+ WO_3 WO_3 Ag_2O

1

9



1 Ag^+ WO_3 [9].

Andreu Bi_2WO_6 $BiVO_4$ Bi_2WO_6/TiO_2-P25 Bi

$BiVO_4$

Surface plasmon, SP [10]

(Localized surface plasmon resonance, LSPR)[11]

- 40%

Au Ag Cu [12]

IB LSPR 2

20 nm

SP

CO_2

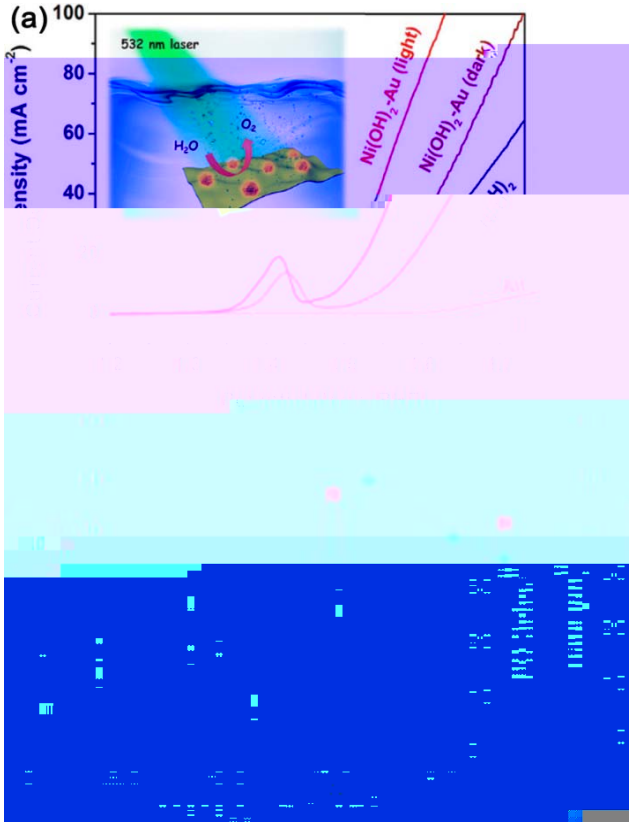
[15] 3 -

532 nm Au SP $Ni(OH)_2$-Au

O [16] Linic Cu

SP

SP [17]



3 (a) - SP

$Ni(OH)_2$-Au O [16]; (b) Linic

Cu SP [17].

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SP

WO_3 Fe_2O_3 TiO_2

$BiVO_4$ Bi_2WO_6 $SrTiO_3$ Au Ag Cu Pt Pd

1 -

TEM XPS XRD

4

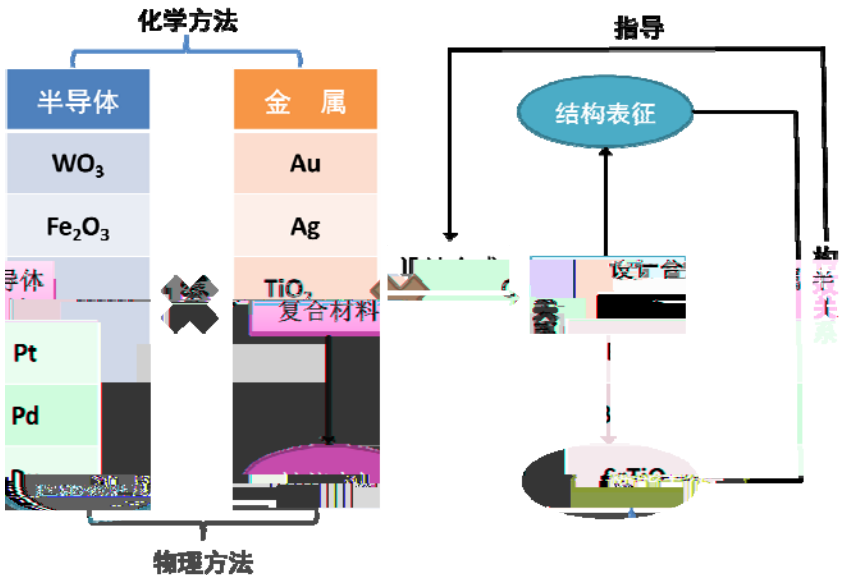
2 -

-

SP

N Ag^+ Fe^{3+} La^{3+} Nb^{5+}

-



4 -

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3

2011 Pt/FeO_x

“ Single-Atom Catalysis ”

Nat. Chem. 2011, 3, 634

Ir_1/FeO_x ***J. Am. Chem. Soc.*** 2013, 135, 15314) ***Acc. Chem. Res.*** 2013, 46, 1740 ***Angew. Chem. Int. Edit.***, 2017, DOI: 10.1002/anie.201610964; ***Chem. Rev.***, 2015, **115**, 11559-11624 ***Angew. Chem. Int. Edit.***, 2017, **56**, 2709-2713 ***Nano Res.***, 2013, **6**, 720-725

SCI 6 1 ***Sci. Rep.*** **Nature publish group**

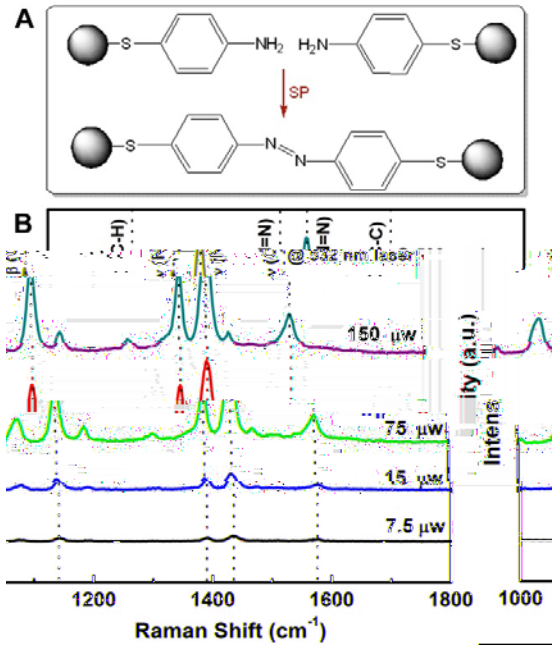
116 1 **RSC** ***Chem. Commun.*** 64 4 ***J. Phys. Chem. C*** ***Chemcatchem*** ***J. Mater. Chem. C***

“ ” $Ag\text{-}TiO_2$ TiO_2 Ag

5

-

“ ”



5 Ag-TiO_2

1

2

3, 4

1

2 **3**

5

“

”

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