(19)

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(43) 2018.11.13

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( ) 41139

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H01M 4/36 (2006.01)
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(56)
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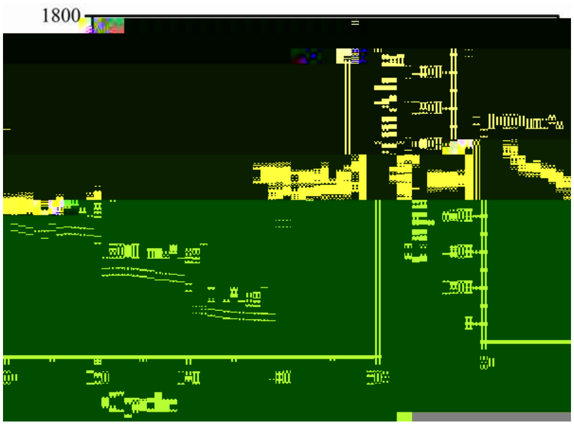
(54)

(57)

α Fe_2O_3

α Fe_2O_3

Fe_3O_4@N C



CN 108807906 B

1.

1 0.1 g α-Fe_2O_3 30 mL 0.2 0.6 mol L^{-1} 5 min 160 12 h 3 60 2 h α-Fe_2O_3

2 0.3 g α-Fe_2O_3 150mL 10 mM Tris 10 min 0.15 g 6 h 3 60 2 h 500 600 2 4 h Fe_3O_4@N-C

2. 1 1 0.4 mol L^{-1}

[0001]

[0002]

[0003] Fe_3O_4 926 mAh g^{-1} Fe_3O_4

Fe_3O_4

CN 103227324A

0.1 A g^{-1} 20

454.8 mAh g^{-1} CN 106450189A

1C 647 mAh g^{-1} 100 624 mAh g^{-1}

[0004]

α-Fe_2O_3 α-Fe_2O_3

Fe_3O_4@N-C

[0005]

[0006] 1 0.1 g α-Fe_2O_3 30 mL 0.2 0.6 mol L^{-1} 5 min 160 12 h 3 60 2 h α-Fe_2O_3

[0007] 2 0.3 g α-Fe_2O_3 150mL 10 mM Tris

10 min 0.15 g 6 h
3 60 2 h
500 600 2 4 h
Fe_3O_4@N-C

[0008] 1 0.4 mol L^{-1}

[0009] α-Fe_2O_3 α-Fe_2O_3

Fe_3O_4@N-C

[0010] 1 α-Fe_2O_3 a b α-Fe_2O_3 α-Fe_2O_3-0.2 c d α-Fe_2O_3-0.4 e f α-Fe_2O_3-0.6 g h SEM

[0011] 2 α-Fe_2O_3 N_2 α-Fe_2O_3-500 a-c α-Fe_2O_3 α-Fe_2O_3 SEM Fe_3O_4@N-C d-f Fe_3O_4-0.2@N-C g-i Fe_3O_4-0.4@N-C j-l) Fe_3O_4-0.6@N-C m-o

[0012] 3 α-Fe_2O_3-0.4 α-Fe_2O_3-500 Fe_3O_4@N-C Fe_3O_4-0.2@N-C Fe_3O_4-0.4@N-C Fe_3O_4-0.6@N-C XRD

[0013] 4 α-Fe_2O_3 a α-Fe_2O_3-0.4 b Fe_3O_4-0.4@N-C c TEM Fe_3O_4-0.4@N-C d Mapping e-h

[0014] 5 Fe_3O_4-0.4@N-C 100 mA g^{-1}

[0015] 6 Fe_3O_4-0.4@N-C

[0016]

[0017] 0.1 g α-Fe_2O_3 30 mL 0.2 mol L^{-1} 0.4 mol L^{-1} 0.6 mol L^{-1} 5 min 160 12 h 3 α-Fe_2O_3 α-Fe_2O_3-0.2 α-Fe_2O_3-0.4 α-Fe_2O_3-0.6

[0018] 0.3g α-Fe_2O_3 0.3 g α-Fe_2O_3-0.2 α-Fe_2O_3-0.4 α-Fe_2O_3-0.6 150mL 10 nM Tris 10 min 0.15 g 6 h 3 α-Fe_2O_3@PDA α-Fe_2O_3-0.2@PDA α-Fe_2O_3-0.4@PDA α-Fe_2O_3-0.6@PDA

500 4 h Fe_3O_4@N-C Fe_3O_4-0.2@N-C Fe_3O_4-0.4@N-C Fe_3O_4-0.6@N-C

[0019] PVDF 7:2:1 60 μm 14 mm 2025

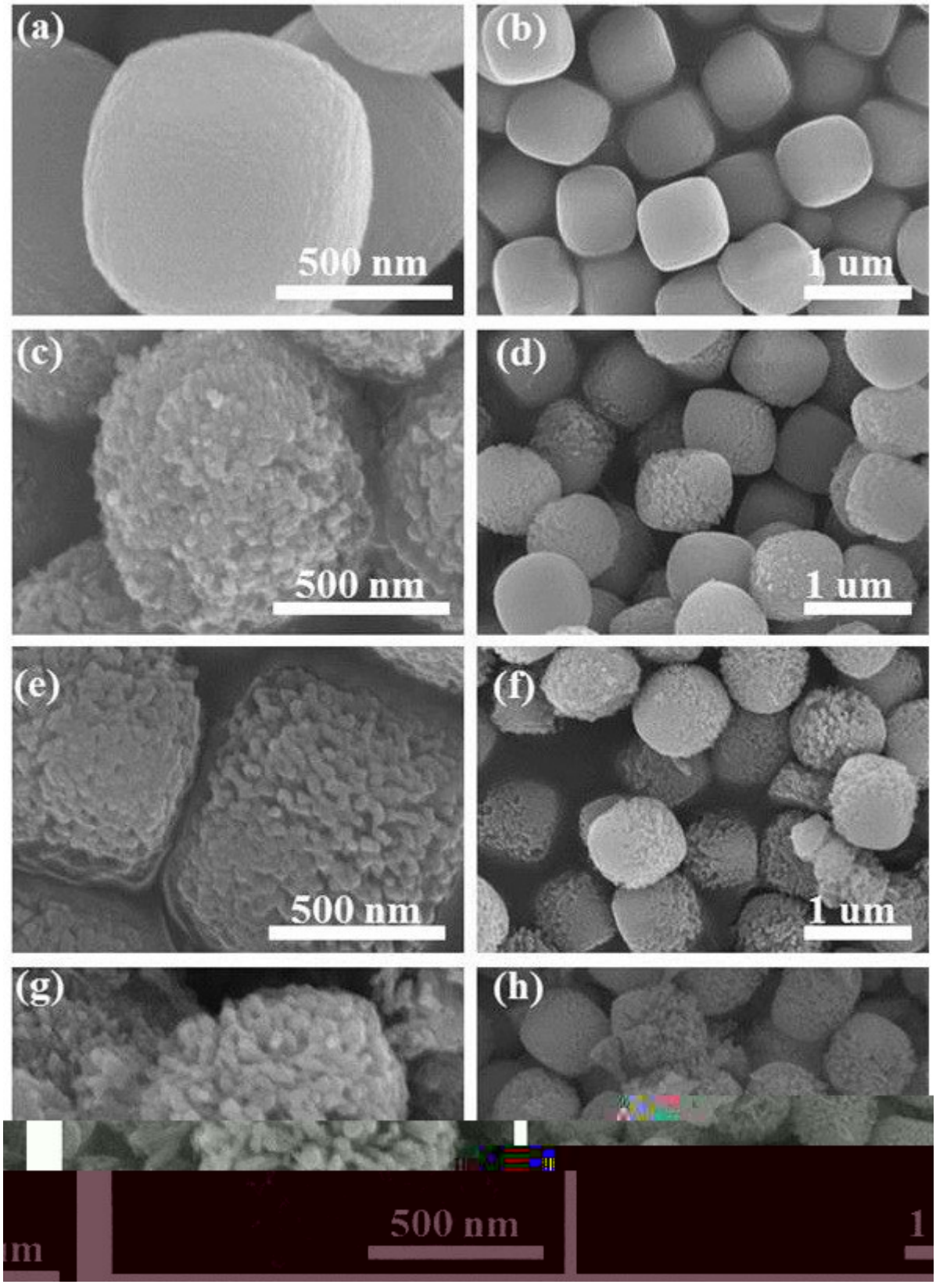
[0020] α-Fe_2O_3 Fe_3O_4@N-C

[0021] 1 SEM 1 PDF# 33-0664 α-Fe_2O_3 Hemaite syn α-Fe_2O_3

[0022] 2 SEM 2 α-Fe_2O_3 N_2 2 d-o α-Fe_2O_3 2 m-o α-Fe_2O_3

[0023] 3 XRD 3 α-Fe_2O_3 Fe_3O_4 PDF#19-0629 α-Fe_2O_3-0.2@PDA α-Fe_2O_3-0.4@PDA α-Fe_2O_3-0.6@PDA Fe_3O_4-0.2@N-C Fe_3O_4-0.4@N-C Fe_3O_4-0.6@N-C

[0024] 4 TEM Mapping 4 a α-Fe_2O_3 α-Fe_2O_3 4 c Fe_3O_4-0.4@N-´$_3O_3$-0$_3$m



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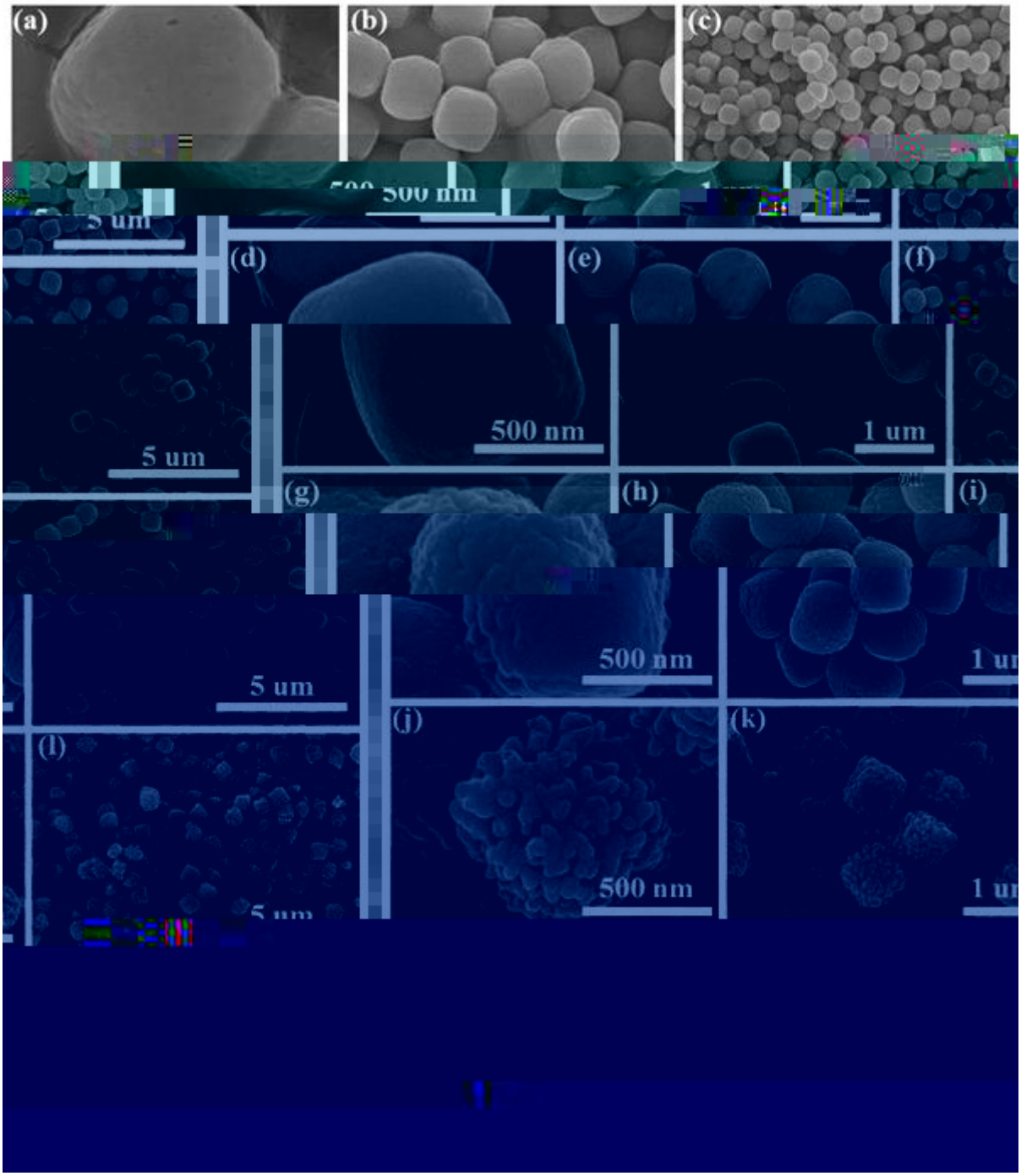

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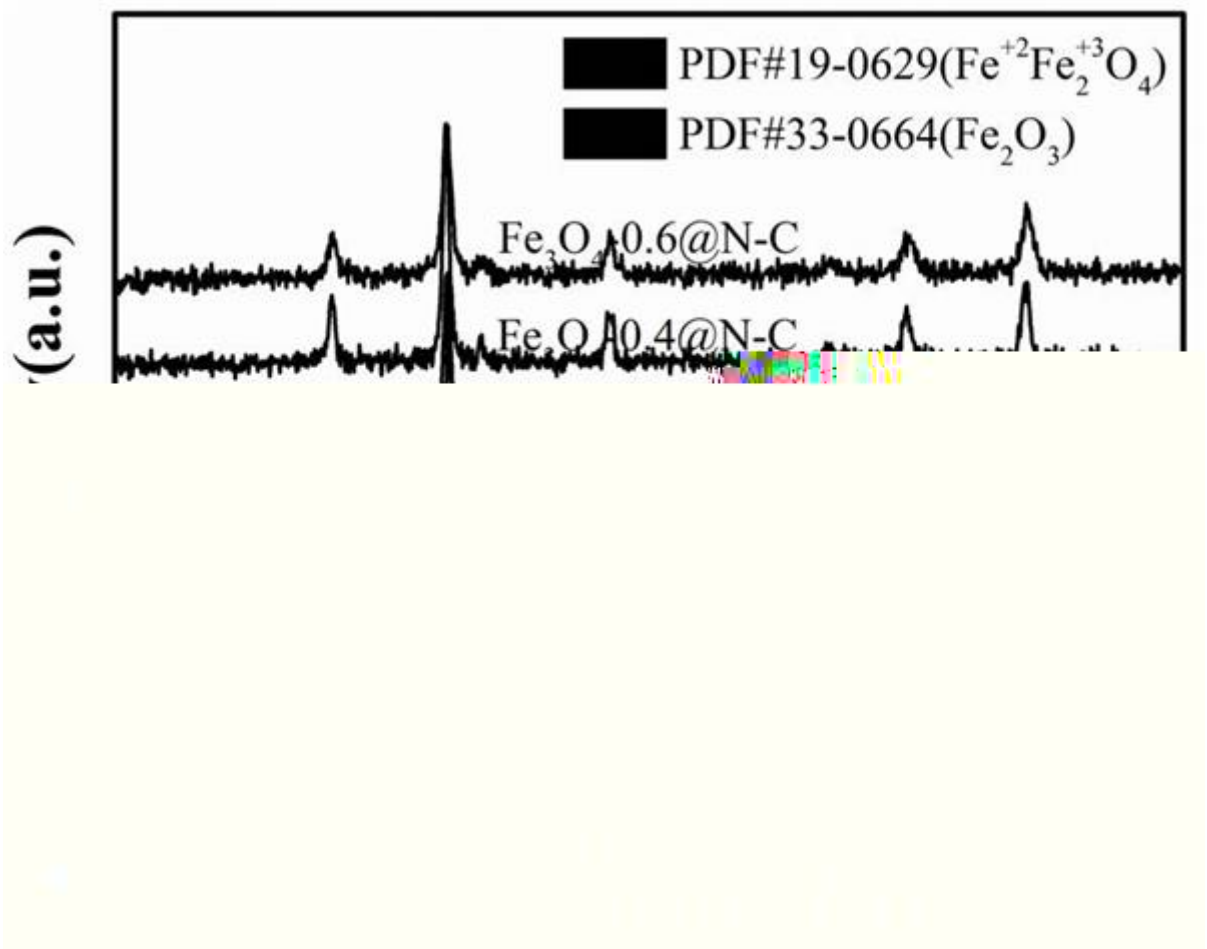
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PDF#33-0664(Fe_2O_3)
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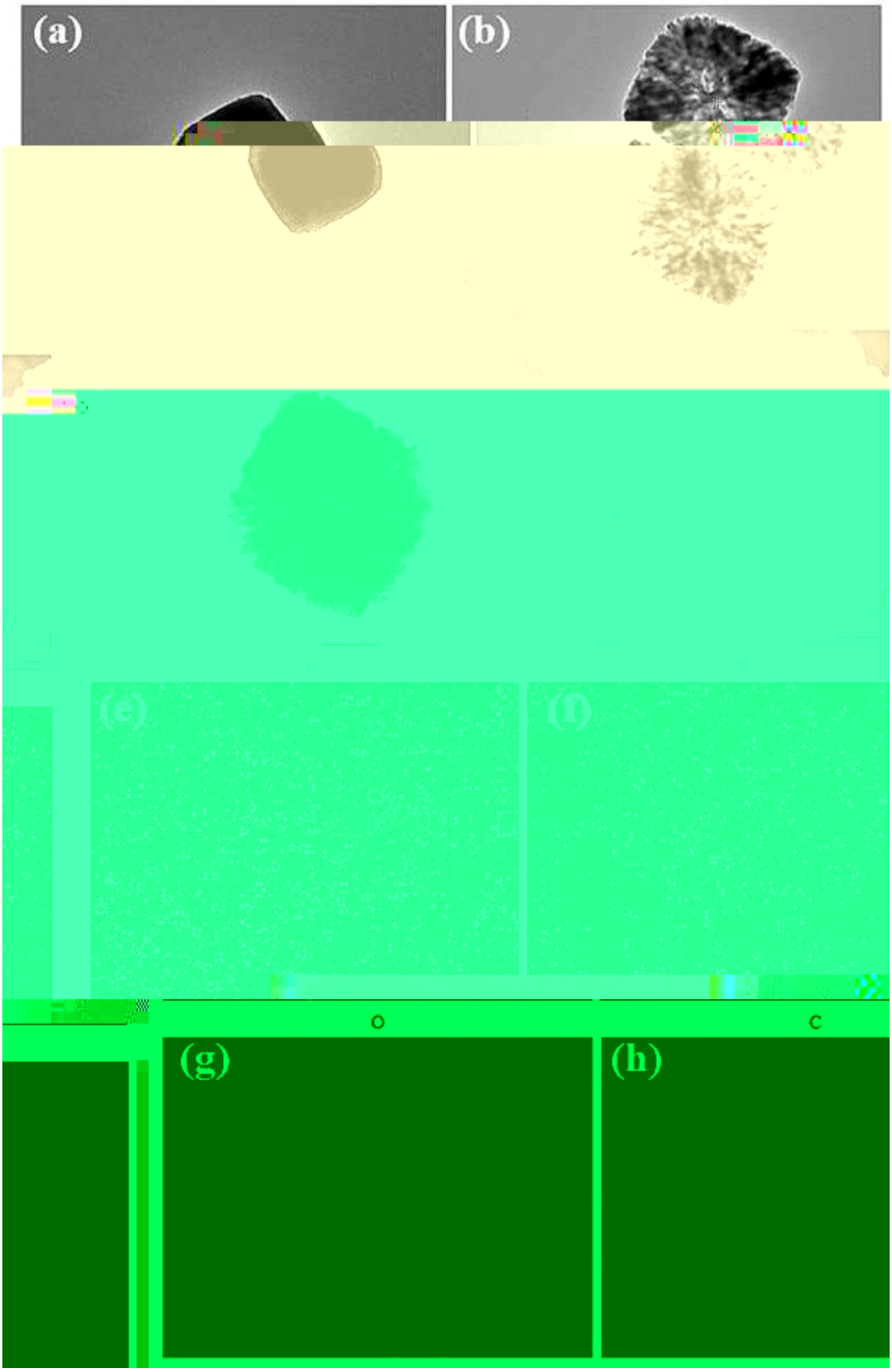
$Fe_3O_4$0.4@N-C
(a.u.)

3



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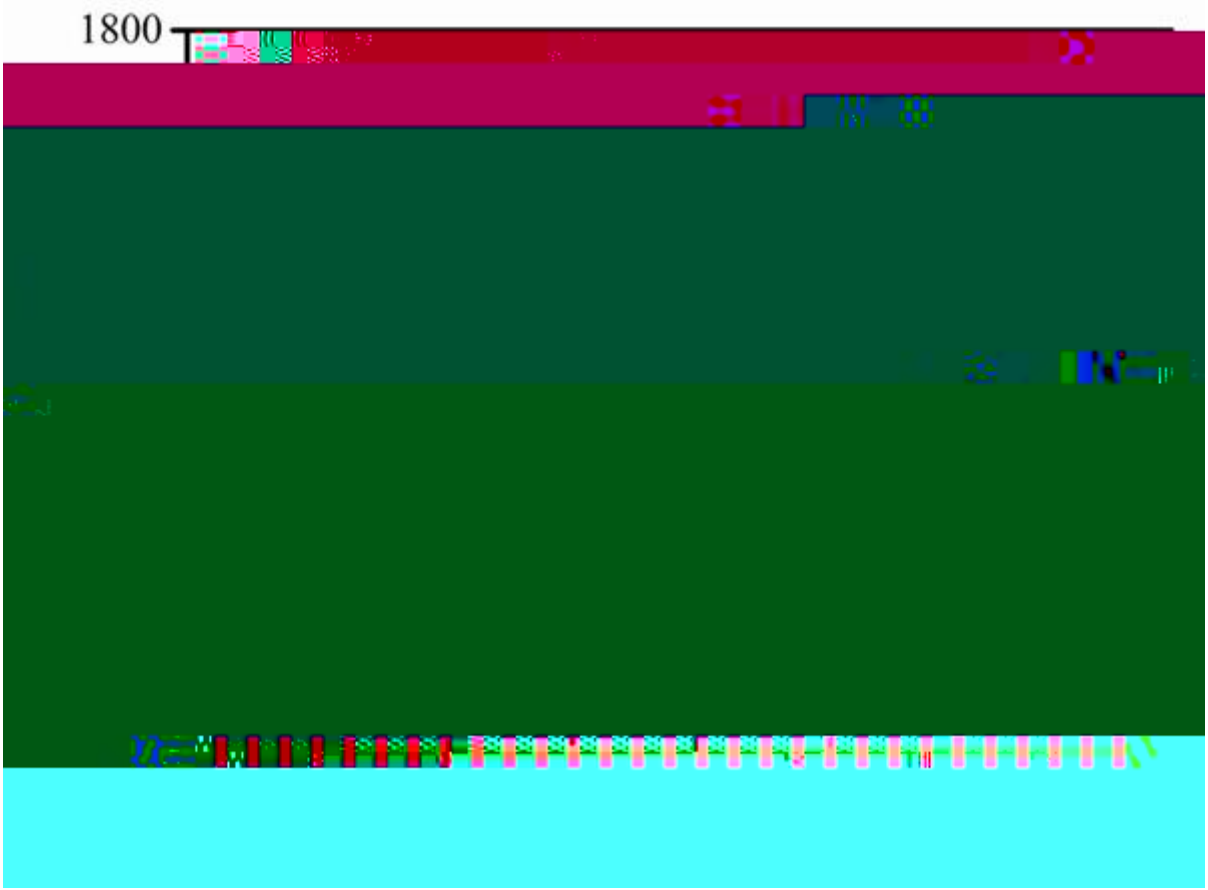

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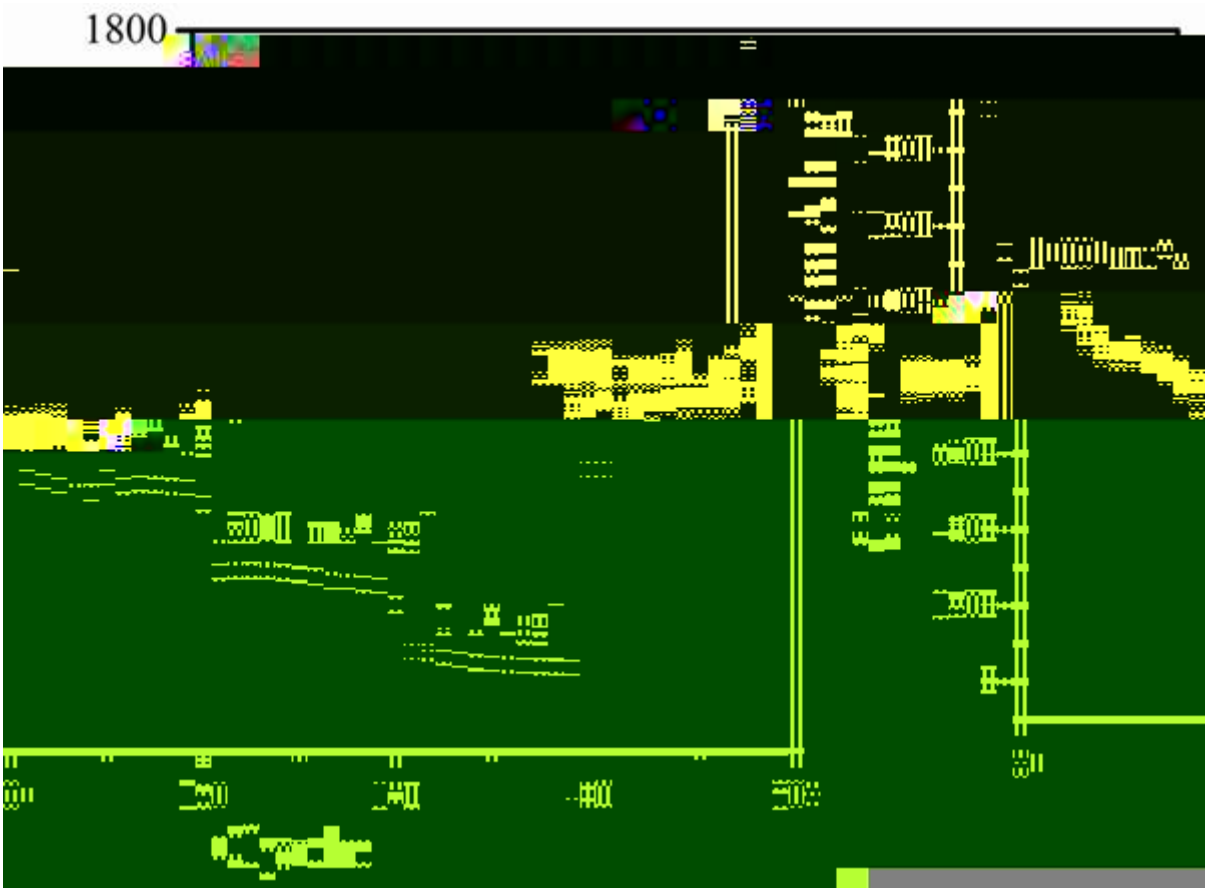

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