Introduction

Green chemistry is a new issue that is the great coucern

contains both

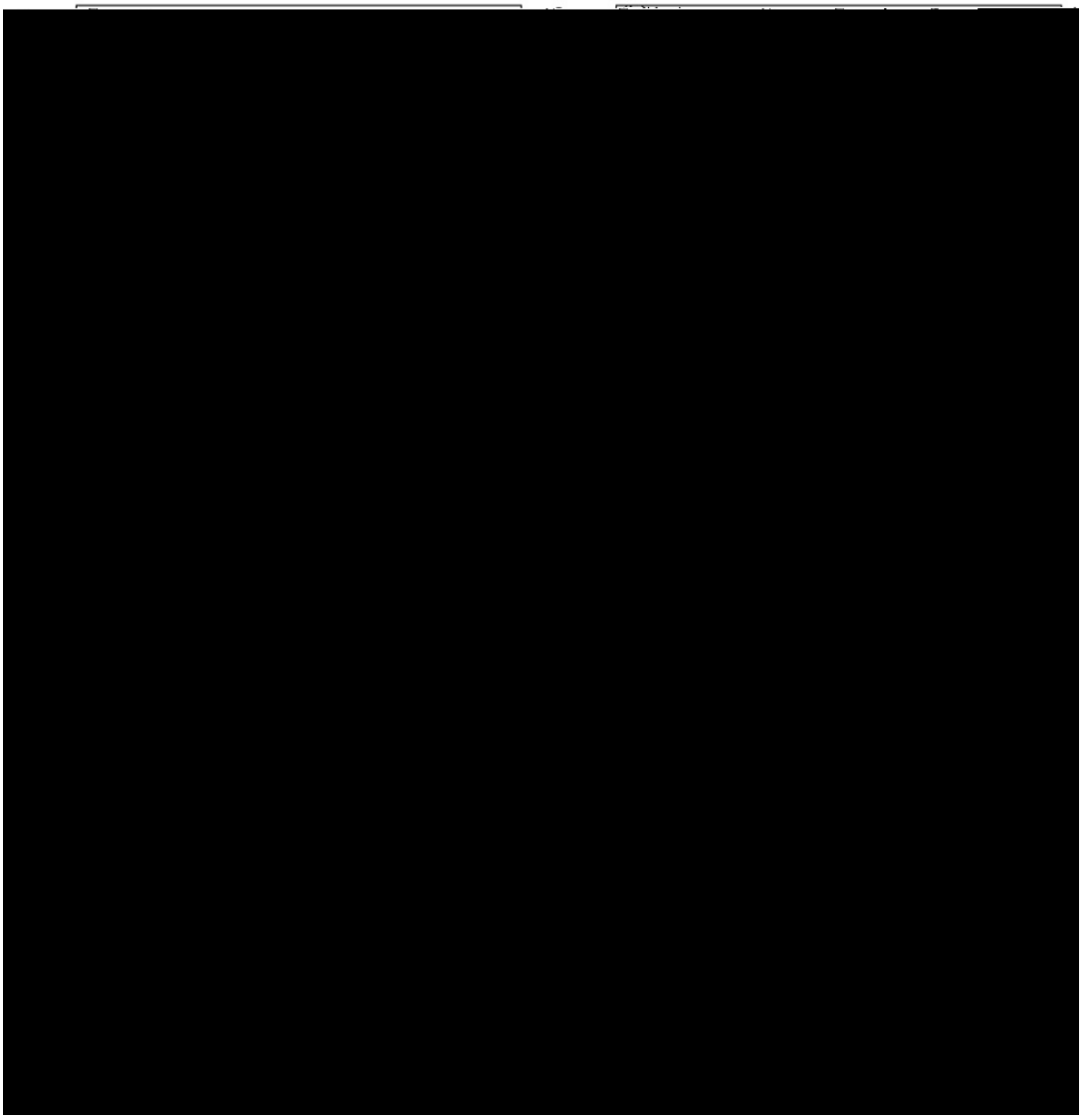
Classification of rheological phase reaction method

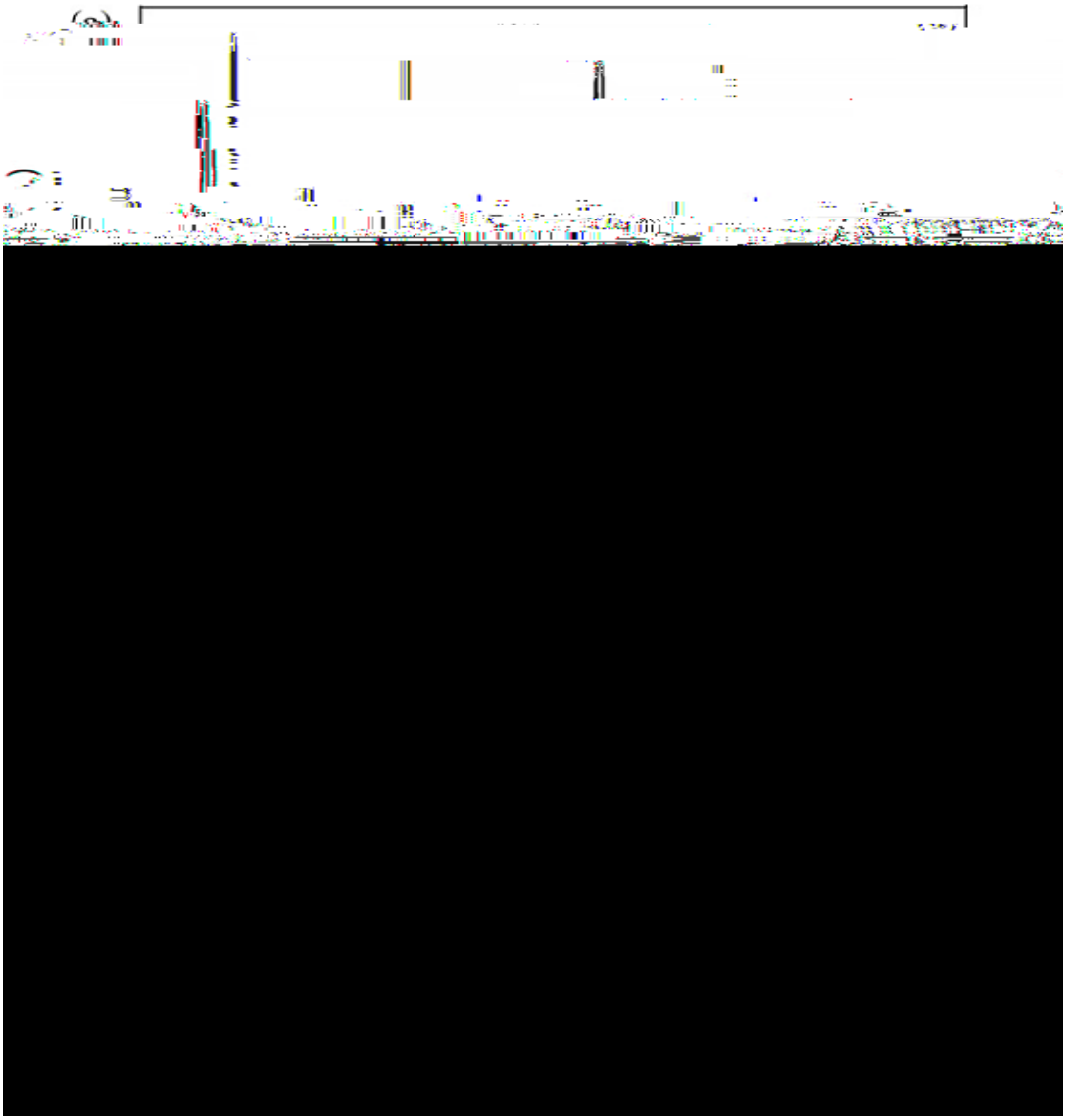
disguise the system with flow super concentration and ease the impact on the de ect nucleation. With the adentages of this approach continu ing to show a lot, more and more researchers in disguise prepared us the stream and coming out of a lot of material. There include s 10.08 1(g)18(l)-9(e)21( )11(c)-5(r)1

materials, negative temperature co1( )5fficient thermostatdenced electrode materials polycrysalline soft ferrite materials, inherently cocting polymers (ICPs) and so on.

Single crysal matrial

in the formation of arsenic-





morphology of the Precursor B and the single quadrate crystal still consists of many nano spheres with the average particle sizes about 20nm (Fig.1.3b_2 and Fig. 1.4b_3). The results from SEM and TEM images agree well with the observations from the XRD and electrochemical measurements.

FIGURE 1.3
cim59(a3)1(g-28(e)-1(s2 r4mn)10(o)27(f)-10( )15Pi)-9rFec2-8(u)-1(r61(s-3(o(r61Aa)26(()-12(a)] TJ ET Q q BT /F1 8 Tf 0 0

dried under vacuum. The reaction involved is as follows:

$$Fe^{2+} + 2BH_4^- + 6H_2O \rightarrow Fe^0 + 2B(OH)_3 + 7H_2 \quad (4)$$

As shown in Fig.1.5, the XRD patterns of C-NZVI after three days of aging indicated the presence of the body-centered cubic α-Fe (110 and 220) (2θ = 44.83° and 65.22°, respectively). The presence of K^+ (2θ = 30.12°, 31.24°) derived fro>frro-1( )] TJ ET Q qopy

The TEM image (Fig.1.6) demonstrated that NZVI particles were encapsulated into the microspheres by CMC and were isolated from each other. CMC has been successfully used as an effective stabilizer in the preparation of nanoparticles such as Ag nanoparticles and superparamagnetic iron oxide nanoparticles. Like starch, CMC is also low-cost and environmentally friendly compound. CMC and starch have similar macromolecular skeletons. However, CMC carries carboxylate groups in addition to hydroxyl groups. Hence, CMC can interact with iron nanoparticles more strongly and stabilize the nanoparticles more effectively

FAGURE 1.7
TG–DTA graph of ZnO nano-crystalline powder doped with 2% Cu

Crystallinity of the synthesized $Zn_{1-x}Cu_x$

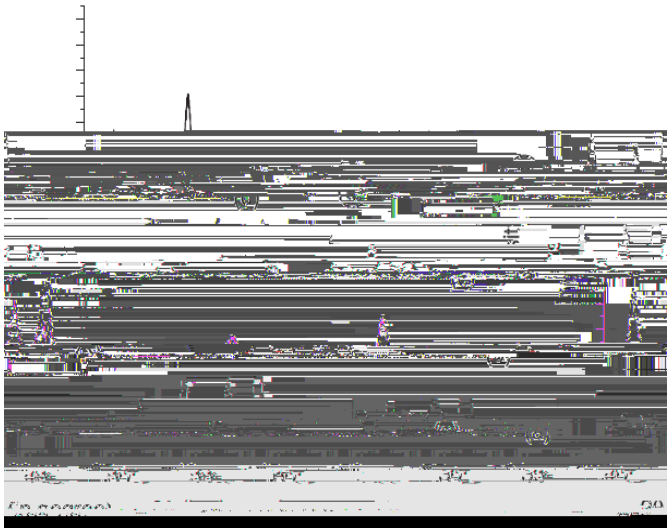


FIGURE 1.8
XRD pattern of ZnO nano-crystalline powder doped with (a) 1%, (b) 1.5%, (c) 2% and (d) 2.5% Cu. Curves are shifted vertically to improve clarity

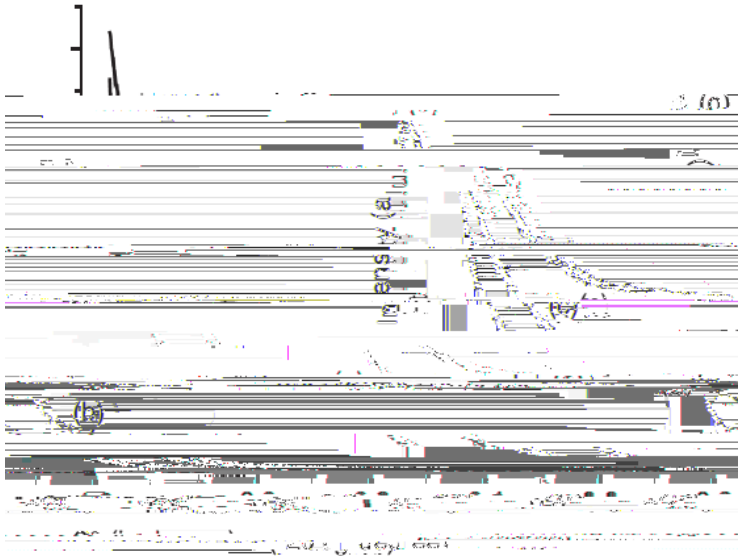


FIGURE 1.9
Small angle X-ray profile of particle size for (a) 1%, (b) 1.5%, (c) 2% and (d) 2.5% Cu doping

FIGURE 1.10
Particle size distribution as measured from small angle X

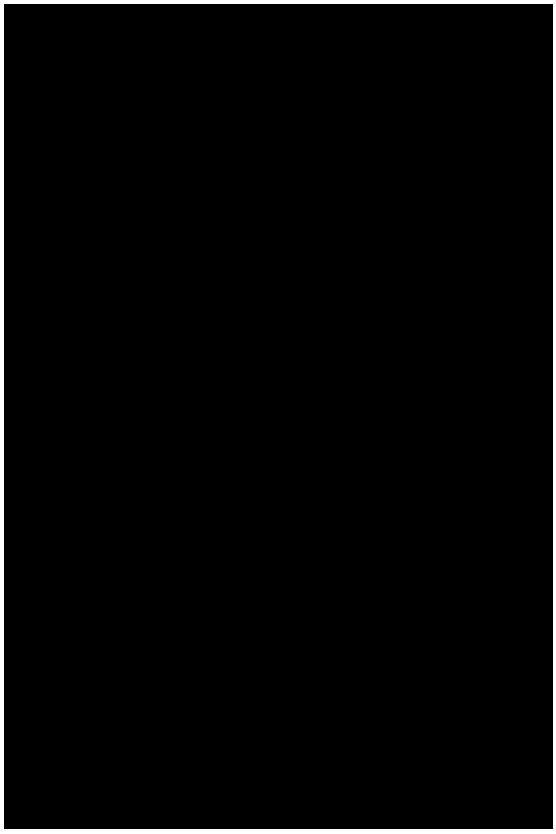


FIGURE 1.14
A general flowchart of the synthesis process

Fig. 1.15 shows the TGA curves of$Zn_{0.6}Cu_{0.4}Cr_{0.5}Fe_{1.5}O_4$ precrsor measured with a heating rate of 10 /min in air, indicating the multistep weight loss with increasing temperature up to 800 . It cn be seen that the first small fraction of weight loss from room temperature to9(a)2(i)1bout80 mainly due to the expulsion of (i)1bsorbed water in the precuecsor. Obvious weigt loss has been found in the temperature range of 140–260 because of the complete dehydration and14(e)-1(51(l)14(e)-8.-202(h)1(a

FIGURE 1.18
AFM images of the as

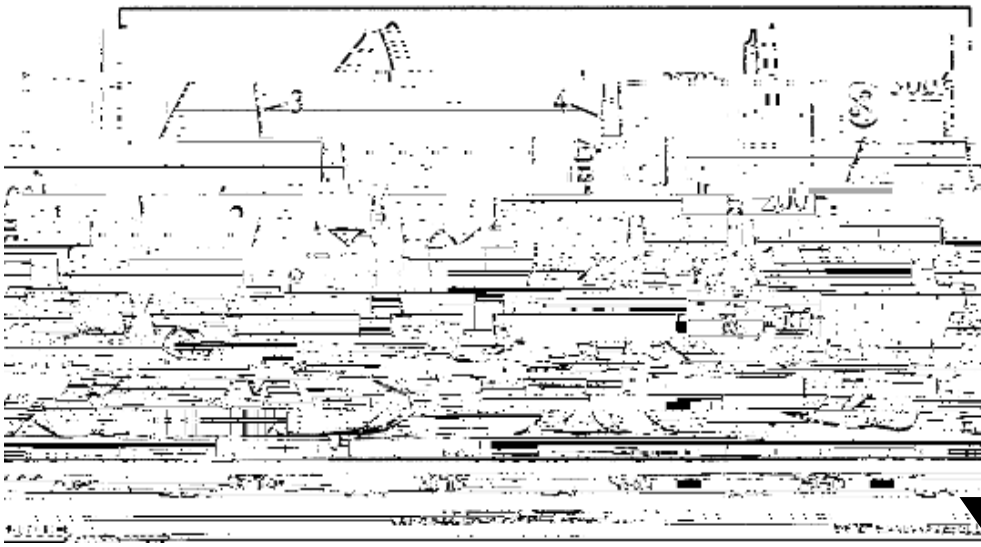


FIGURE 1.21
Excitation spectra (1 and 5,λ_{Em}=388 nm; 3,λ_{Em}=546 nm) and emission spectra (2 and 4,λ_{Ex}=345 nm) of α-X

surface are then polymerized by ammonium persulfate as an oxidizing agent at room temperature.

FIGURE 1.27
Formation process of PANI/NZFO NCs

FIGURE 1.34

material by Padhi et al. appears as a potential candidate to be used as positive electrode in next

solid-state reaction using the Fe(II) raw material. In contrast, we did not detect any impurities,

Matters needing attention in using rheological phase reaction method

The reaction design with rheological phase reaction method is very important, such as in what reactant

22.