

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/PCCP

PAPER

## Preparation of h-MoO<sub>3</sub> and α-MoO<sub>3</sub> nanocrystals: Comparative study on photo catalytic degradation of methylene blue under visible light irradiation

A. Chithambararaj<sup>a</sup>, N. S. Sanjini<sup>b</sup>, S. Velmathi<sup>b</sup> and A. Chandra Bose<sup>\*a</sup>

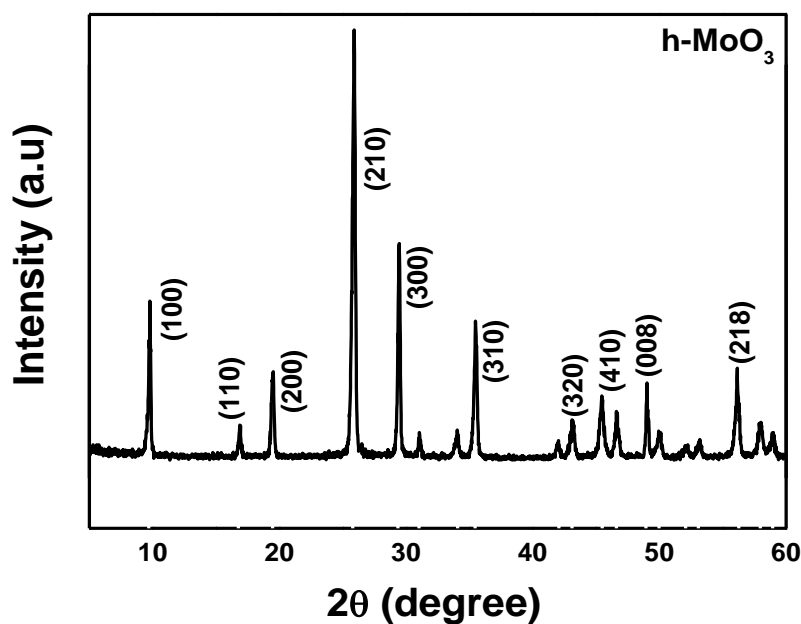
5

<sup>a</sup> Nanomaterials Laboratory, Department of Physics, National Institute of Technology, Tiruchirappalli – 620 015, India. E-mail: acbose@nitt.edu

<sup>b</sup> Organic and polymer synthesis laboratory, Department of Chemistry, National Institute of Technology, Tiruchirappalli – 620 015, India

10

(ESI†) S1 XRD pattern of as-synthesized h-MoO<sub>3</sub> NCs



Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/PCCP

PAPER

## Preparation of h-MoO<sub>3</sub> and α-MoO<sub>3</sub> nanocrystals: Comparative study on photo catalytic degradation of methylene blue under visible light irradiation

A. Chithambararaj<sup>a</sup>, N. S. Sanjini<sup>b</sup>, S. Velmathi<sup>b</sup> and A. Chandra Bose<sup>\*a</sup>

<sup>a</sup> Nanomaterials Laboratory, Department of Physics, National Institute of Technology, Tiruchirappalli – 620 015, India. E-mail: acbose@nitt.edu

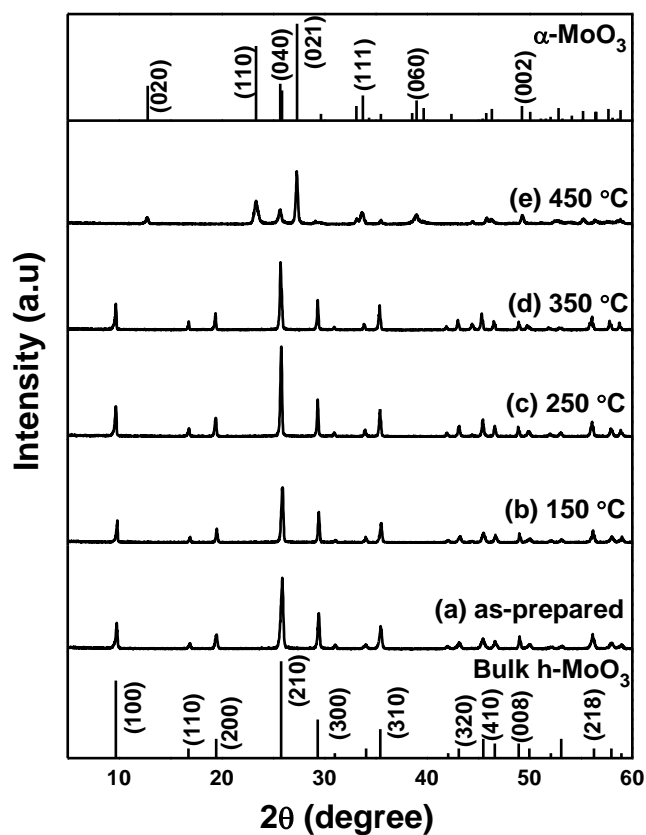
<sup>b</sup> Organic and polymer synthesis laboratory, Department of Chemistry, National Institute of Technology, Tiruchirappalli – 620 015, India

10

(ESI†) S2 XRD pattern of (a) as-synthesized h-MoO<sub>3</sub> NCs and samples annealed at (b) 150 °C, (c) 250 °C, (d) 350 °C, and (e) 450 °C for 1h

15

20



25

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/PCCP

PAPER

## Preparation of h-MoO<sub>3</sub> and α-MoO<sub>3</sub> nanocrystals: Comparative study on photo catalytic degradation of methylene blue under visible light irradiation

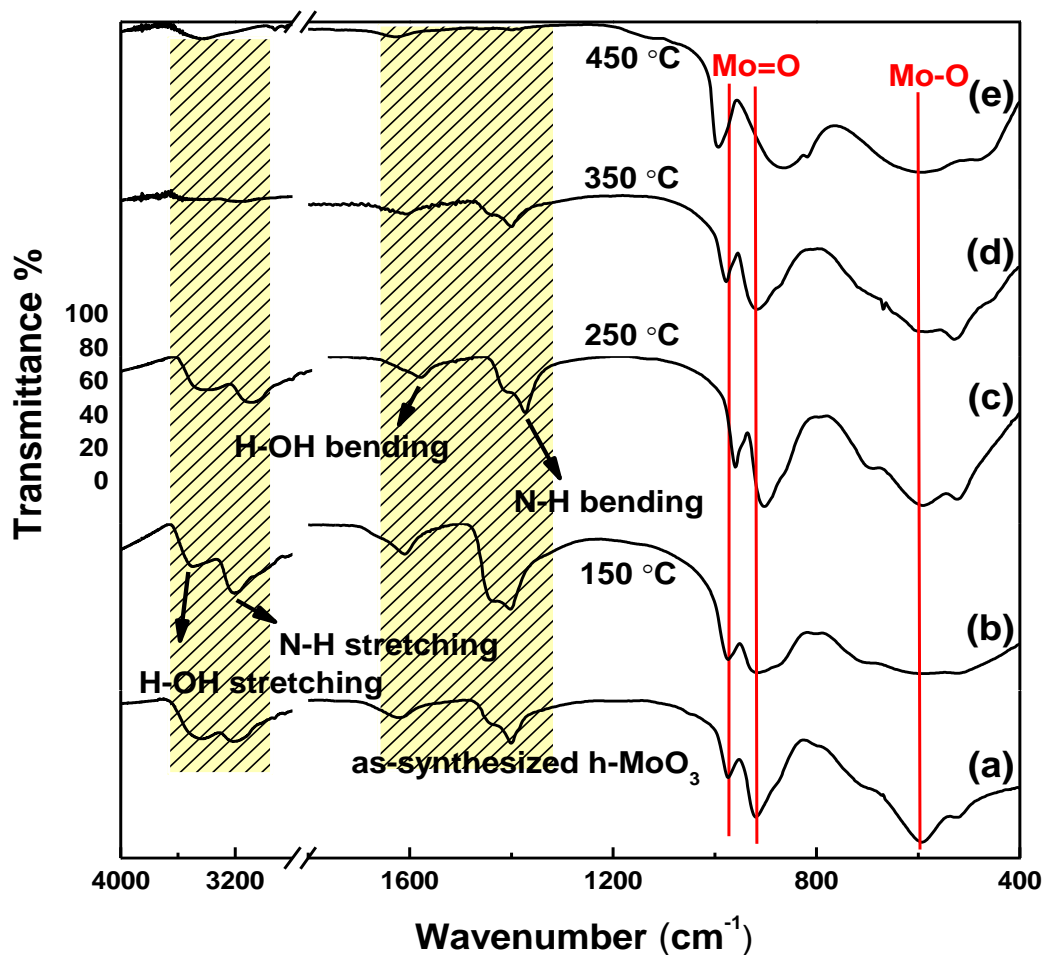
A. Chithambararaj<sup>a</sup>, N. S. Sanjini<sup>b</sup>, S. Velmathi<sup>b</sup> and A. Chandra Bose<sup>\*a</sup>

5

<sup>a</sup> Nanomaterials Laboratory, Department of Physics, National Institute of Technology, Tiruchirappalli – 620 015, India. E-mail: acbose@nitt.edu

<sup>b</sup> Organic and polymer synthesis laboratory, Department of Chemistry, National Institute of Technology, Tiruchirappalli – 620 015, India

10 (ESI†) S3 FT-IR spectra of (a) as-synthesized h-MoO<sub>3</sub> NCs and samples annealed (b) 150 °C, (c) 250 °C, (d) 350 °C, and (e) 450 °C for 1h



Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/PCCP

PAPER

## Preparation of h-MoO<sub>3</sub> and α-MoO<sub>3</sub> nanocrystals: Comparative study on photo catalytic degradation of methylene blue under visible light irradiation

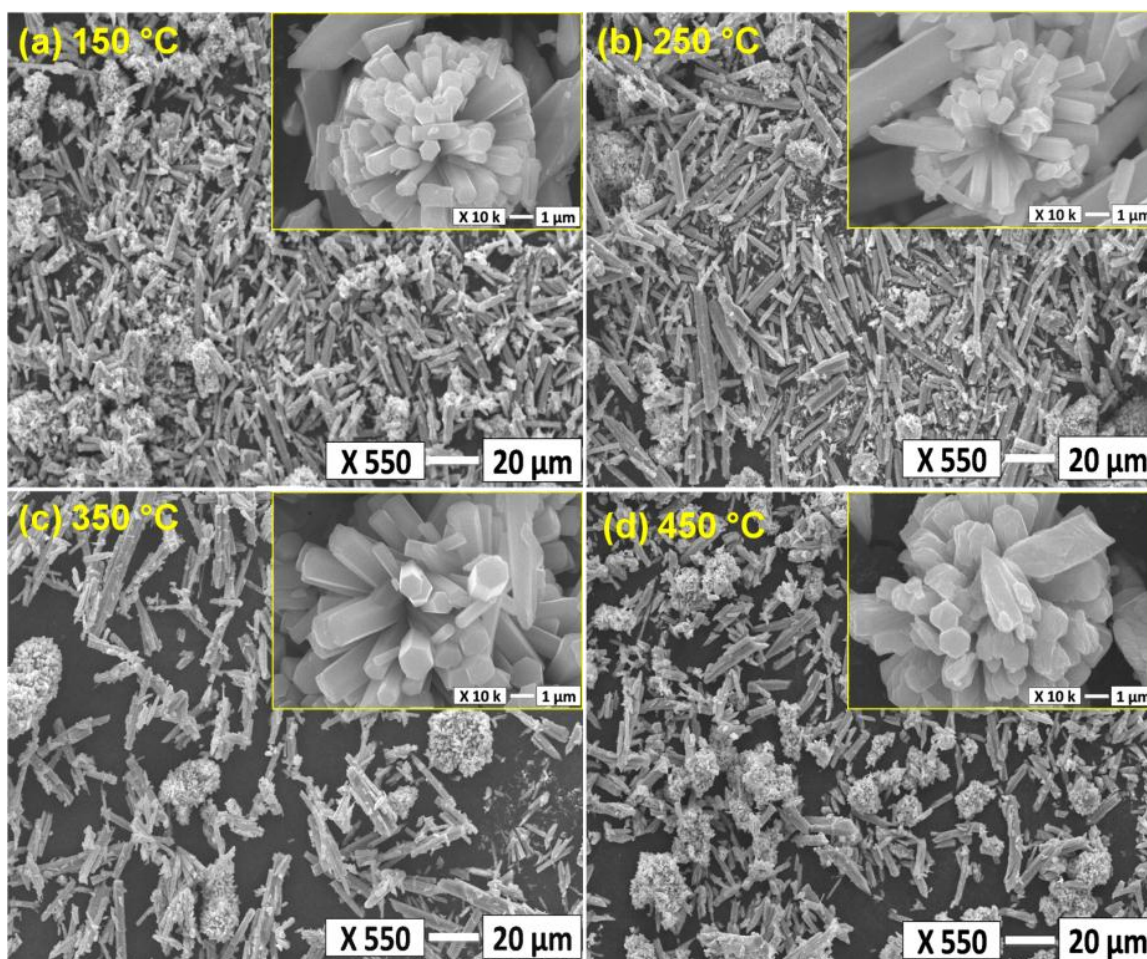
A. Chithambararaj<sup>a</sup>, N. S. Sanjini<sup>b</sup>, S. Velmathi<sup>b</sup> and A. Chandra Bose<sup>\*a</sup>

5

<sup>a</sup> Nanomaterials Laboratory, Department of Physics, National Institute of Technology, Tiruchirappalli – 620 015, India. E-mail: acbose@nitt.edu

<sup>b</sup> Organic and polymer synthesis laboratory, Department of Chemistry, National Institute of Technology, Tiruchirappalli – 620 015, India

10 (ESI†) S4 FESEM images of h-MoO<sub>3</sub> sample annealed (b) 150 °C, (c) 250 °C, (d) 350 °C, and (e) 450 °C for 1h



Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/PCCP

PAPER

## Preparation of h-MoO<sub>3</sub> and α-MoO<sub>3</sub> nanocrystals: Comparative study on photo catalytic degradation of methylene blue under visible light irradiation

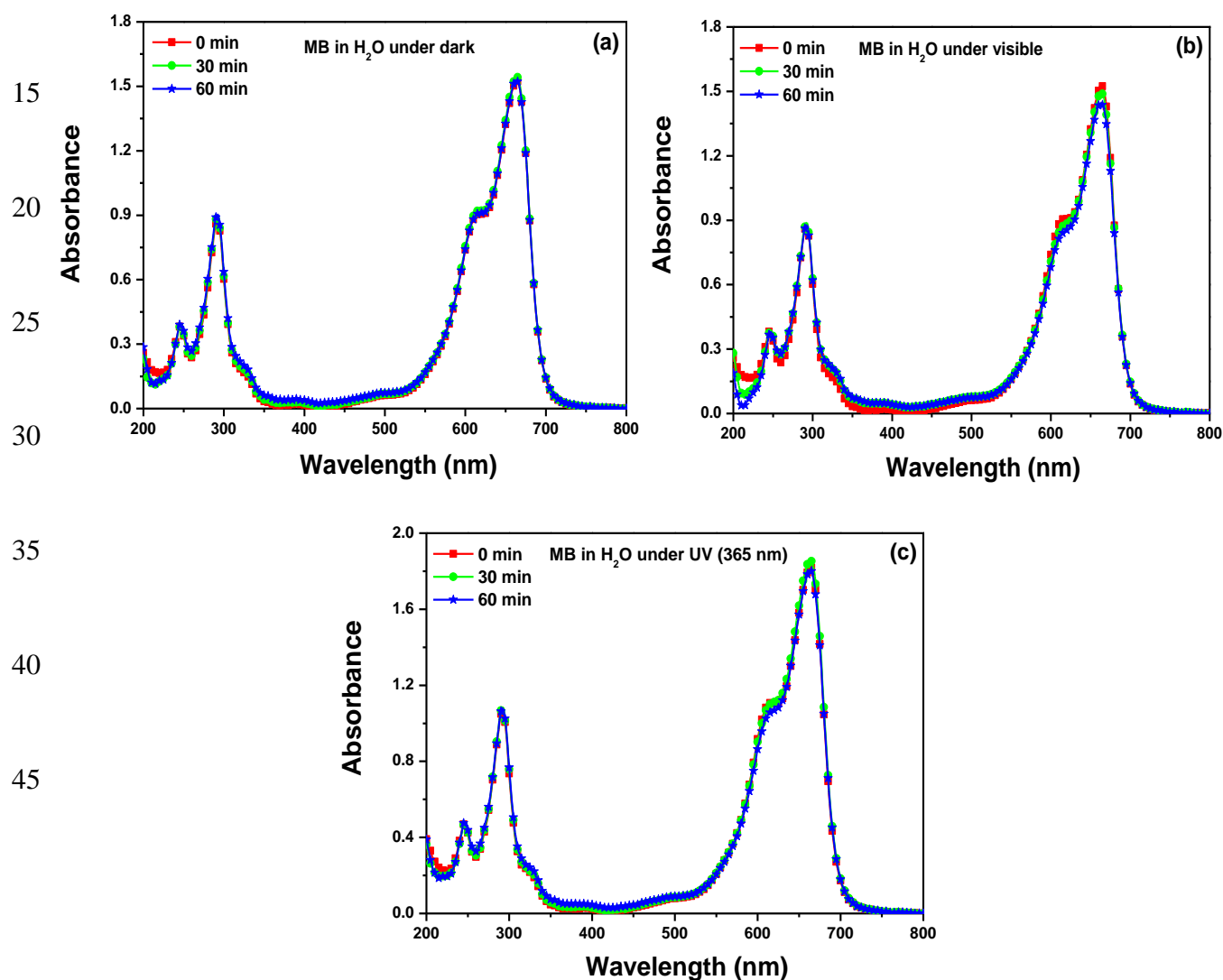
A. Chithambararaj<sup>a</sup>, N. S. Sanjini<sup>b</sup>, S. Velmathi<sup>b</sup> and A. Chandra Bose<sup>\*a</sup>

5

<sup>a</sup> Nanomaterials Laboratory, Department of Physics, National Institute of Technology, Tiruchirappalli – 620 015, India. E-mail: acbose@nitt.edu

<sup>b</sup> Organic and polymer synthesis laboratory, Department of Chemistry, National Institute of Technology, Tiruchirappalli – 620 015, India

10 (ESI†) S5 UV-Vis spectra of MB without catalyst in H<sub>2</sub>O under (a) dark, (b) visible and (c) UV irradiation



Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/PCCP

PAPER

## Preparation of h-MoO<sub>3</sub> and α-MoO<sub>3</sub> nanocrystals: Comparative study on photo catalytic degradation of methylene blue under visible light irradiation

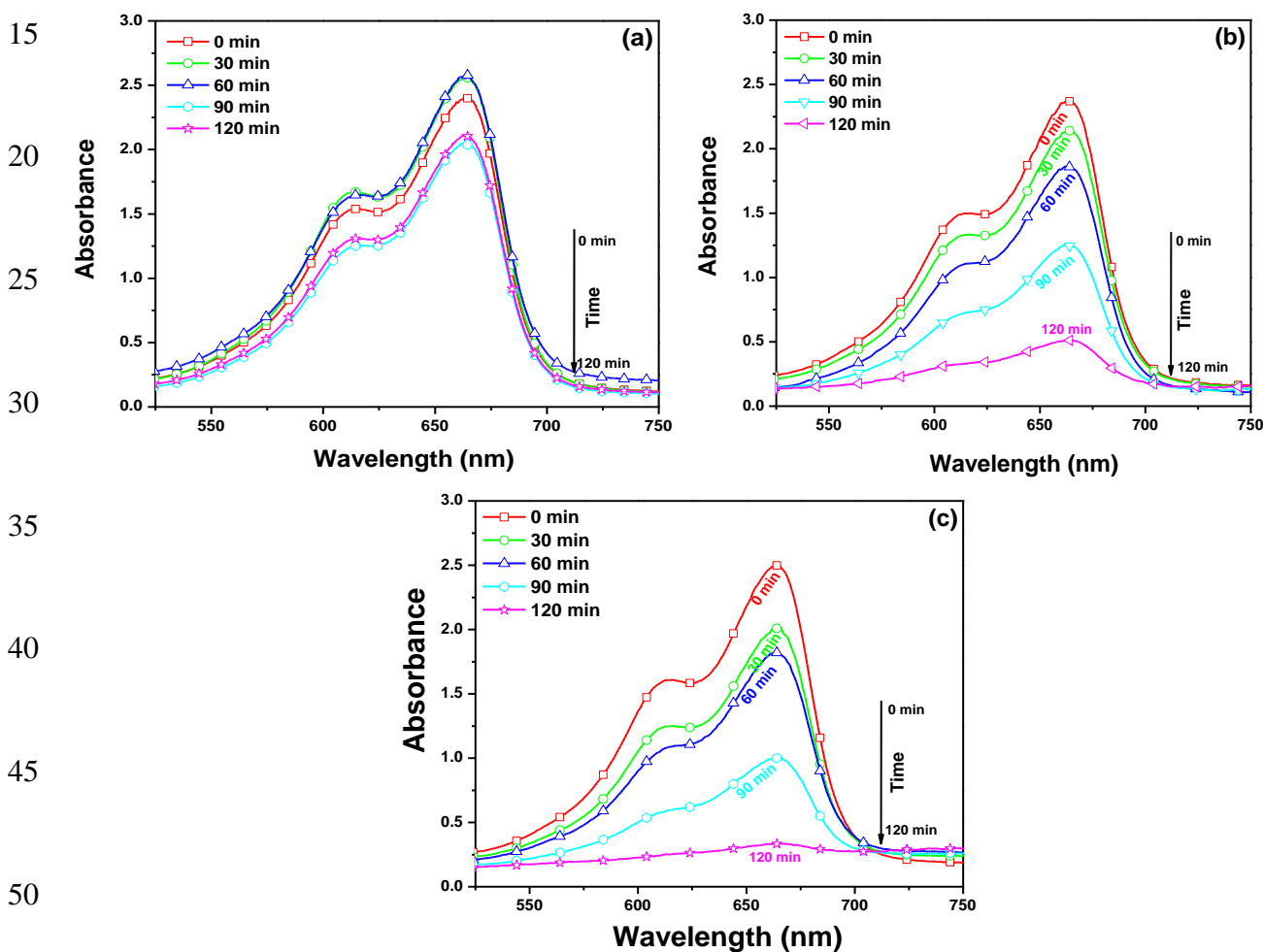
5 A. Chithambararaj<sup>a</sup>, N. S. Sanjini<sup>b</sup>, S. Velmathi<sup>b</sup> and A. Chandra Bose<sup>\*a</sup>

<sup>a</sup> Nanomaterials Laboratory, Department of Physics, National Institute of Technology, Tiruchirappalli – 620 015, India. E-mail: acbose@nitt.edu

<sup>b</sup> Organic and polymer synthesis laboratory, Department of Chemistry, National Institute of Technology, Tiruchirappalli – 620 015, India

10

(ESI†) S6 Spectral evaluation of the effect of catalyst concentration (a) 50; (b) 100 and (c) 200 mgL<sup>-1</sup> of h-MoO<sub>3</sub> NCs on MB degradation



50

Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/PCCP

PAPER

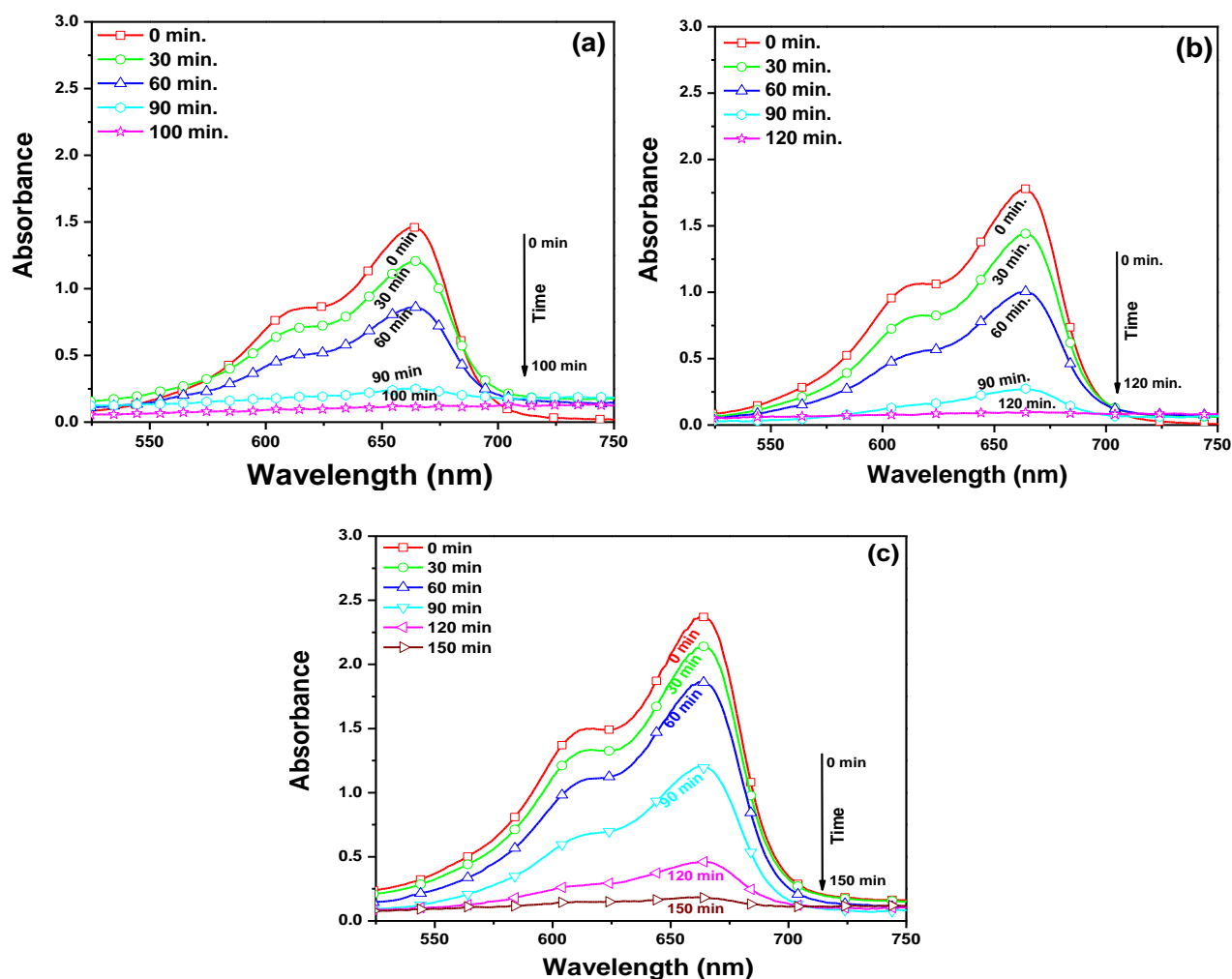
## Preparation of h-MoO<sub>3</sub> and α-MoO<sub>3</sub> nanocrystals: Comparative study on photo catalytic degradation of methylene blue under visible light irradiation

A. Chithambararaj<sup>a</sup>, N. S. Sanjini<sup>b</sup>, S. Velmathi<sup>b</sup> and A. Chandra Bose<sup>\*a</sup>

<sup>a</sup> Nanomaterials Laboratory, Department of Physics, National Institute of Technology, Tiruchirappalli – 620 015, India. E-mail: acbose@nitt.edu

<sup>b</sup> Organic and polymer synthesis laboratory, Department of Chemistry, National Institute of Technology, Tiruchirappalli – 620 015, India

(ESI†) S7 Spectral evaluation of the effect of dye concentration (a) 8; (b) 12 and (c) 16 mgL<sup>-1</sup> of MB on MB degradation



Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/PCCP

PAPER

## Preparation of h-MoO<sub>3</sub> and α-MoO<sub>3</sub> nanocrystals: Comparative study on photo catalytic degradation of methylene blue under visible light irradiation

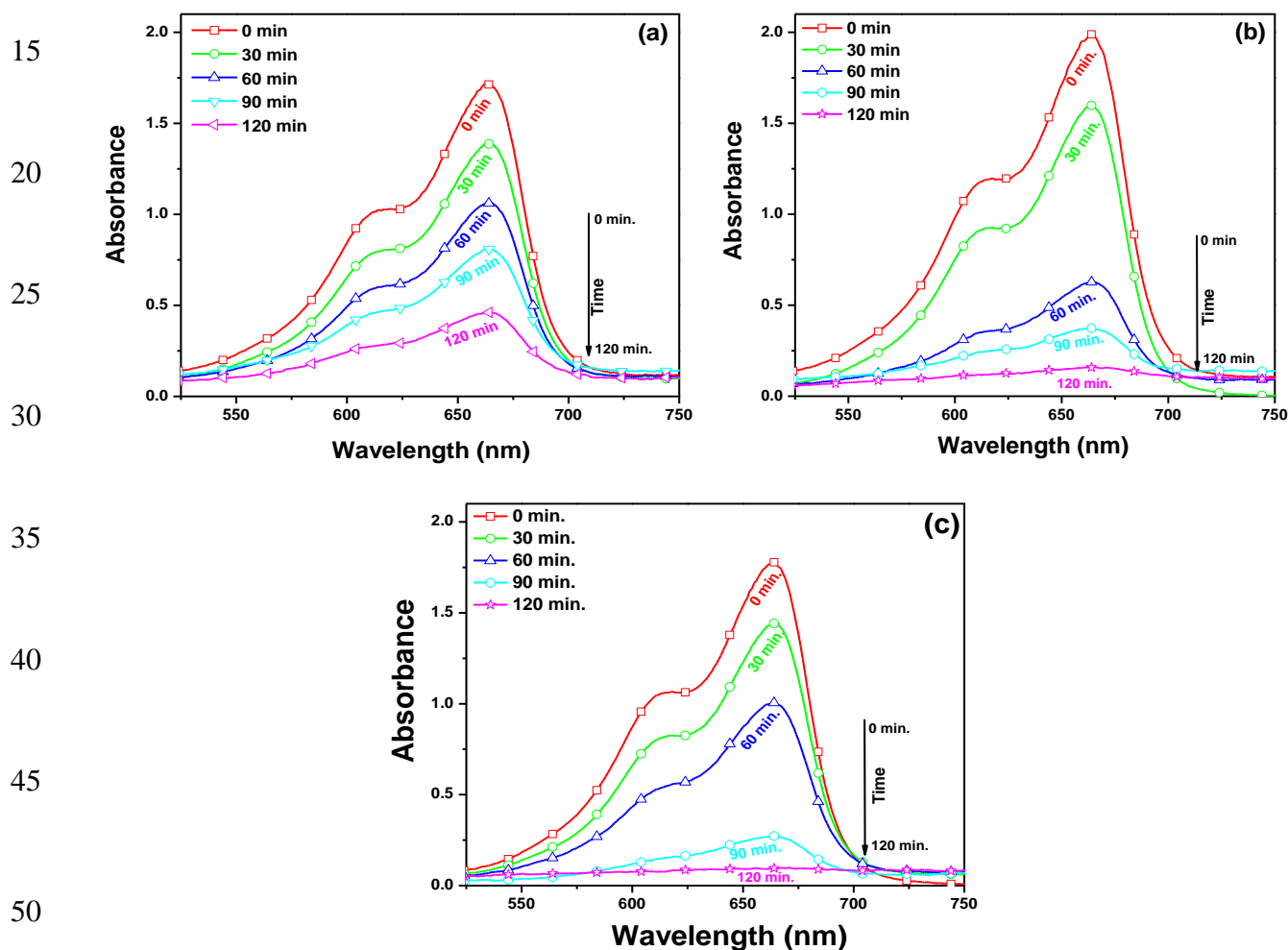
A. Chithambararaj<sup>a</sup>, N. S. Sanjini<sup>b</sup>, S. Velmathi<sup>b</sup> and A. Chandra Bose<sup>\*a</sup>

5

<sup>a</sup> Nanomaterials Laboratory, Department of Physics, National Institute of Technology, Tiruchirappalli – 620 015, India. E-mail: acbose@nitt.edu

<sup>b</sup> Organic and polymer synthesis laboratory, Department of Chemistry, National Institute of Technology, Tiruchirappalli – 620 015, India

10 (ESI†) S8 Spectral evaluation of the effect of visible light intensity (a) 150; (b) 250 and (c) 350 mWcm<sup>-2</sup> on MB degradation



50



Cite this: DOI: 10.1039/c0xx00000x

www.rsc.org/PCCP

PAPER

## Preparation of h-MoO<sub>3</sub> and α-MoO<sub>3</sub> nanocrystals: Comparative study on photo catalytic degradation of methylene blue under visible light irradiation

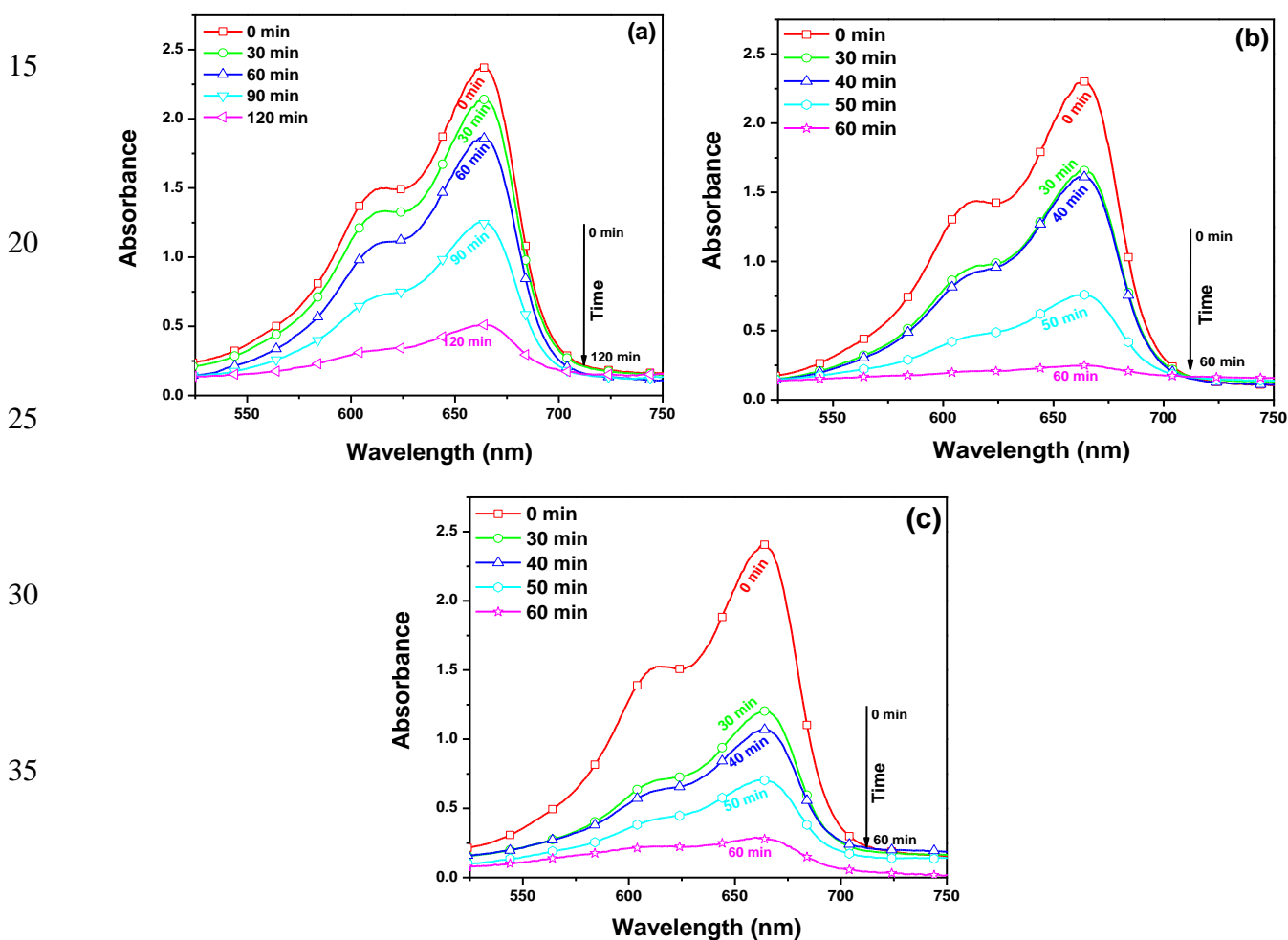
A. Chithambararaj<sup>a</sup>, N. S. Sanjini<sup>b</sup>, S. Velmathi<sup>b</sup> and A. Chandra Bose<sup>\*a</sup>

5

<sup>a</sup> Nanomaterials Laboratory, Department of Physics, National Institute of Technology, Tiruchirappalli – 620 015, India. E-mail: acbose@nitt.edu

<sup>b</sup> Organic and polymer synthesis laboratory, Department of Chemistry, National Institute of Technology, Tiruchirappalli – 620 015, India

10 (ESI†) S9 Spectral evaluation of the effect of operating temperature (a) room temperature (RT);  
(b) 45 °C and (c) 65 °C on MB degradation



25

30

35