

# A comparative study from magnetic measurements between lanthanum manganites and Sr-doped lanthanum manganite



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IMMW22

Date: 26-30/09/22

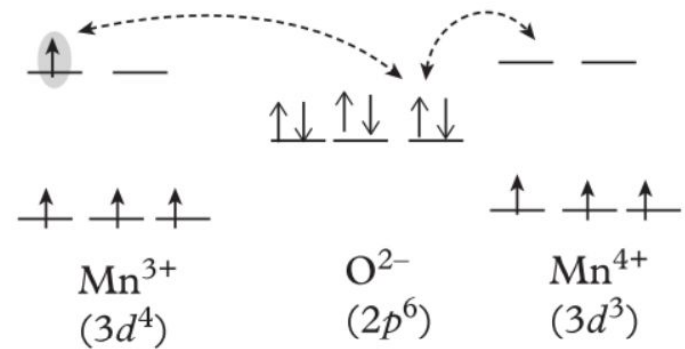
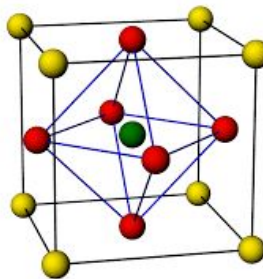
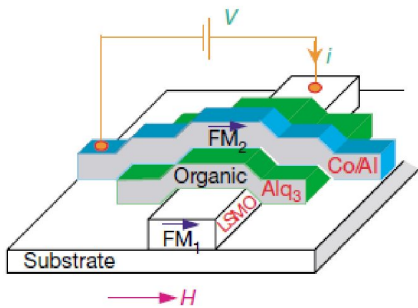
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# Outline

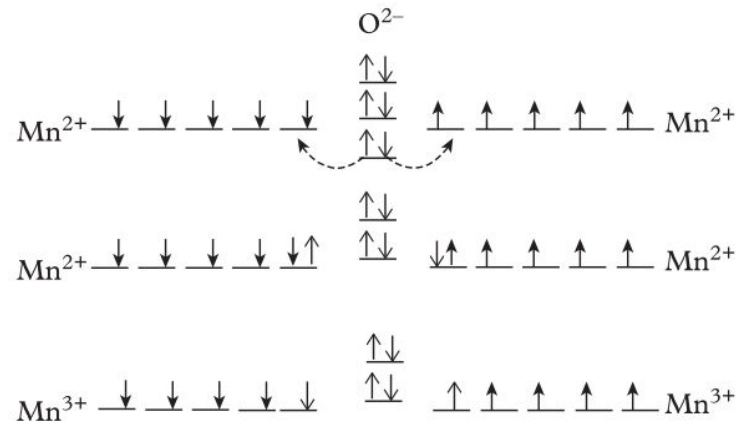
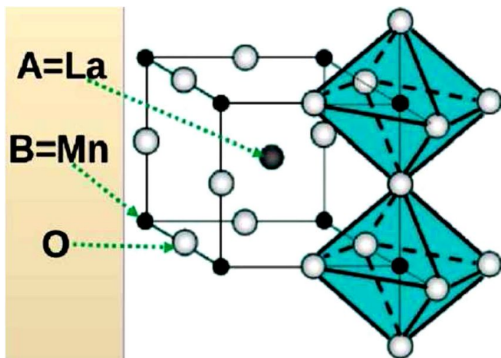
- Introduction
- Methods
- Results
- Summary

# Introduction

Lanthanum strontium  
manganite (LSMO)



Lanthanum manganite (LMO)



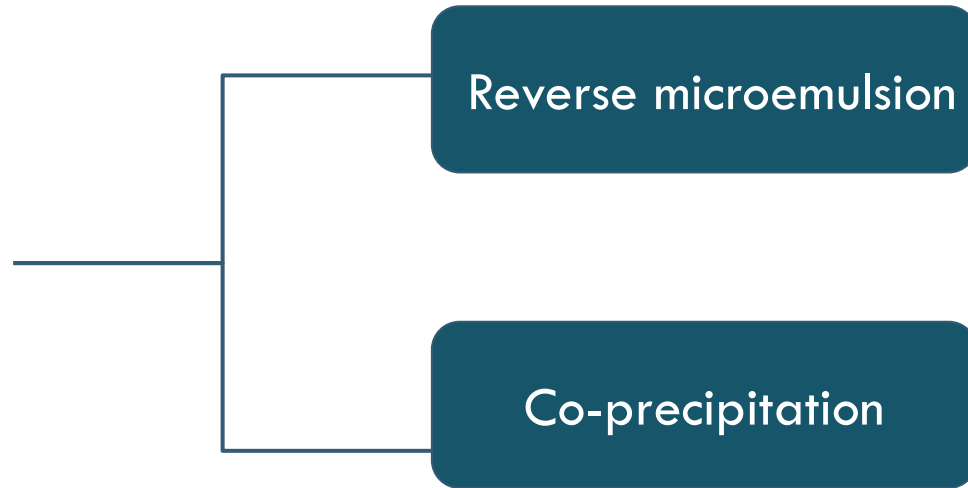
# Methods

- Synthesis

- Analysis

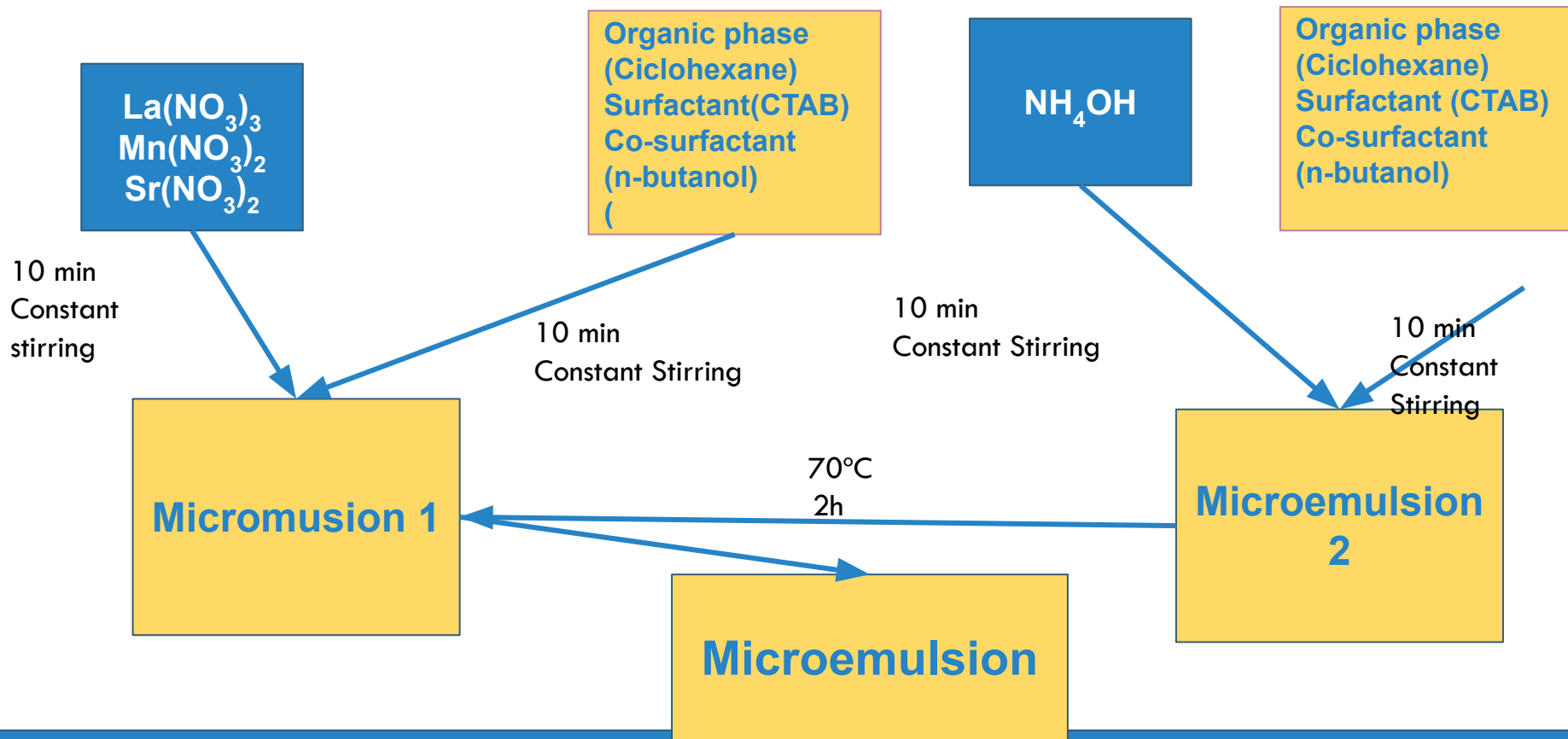
# Methods

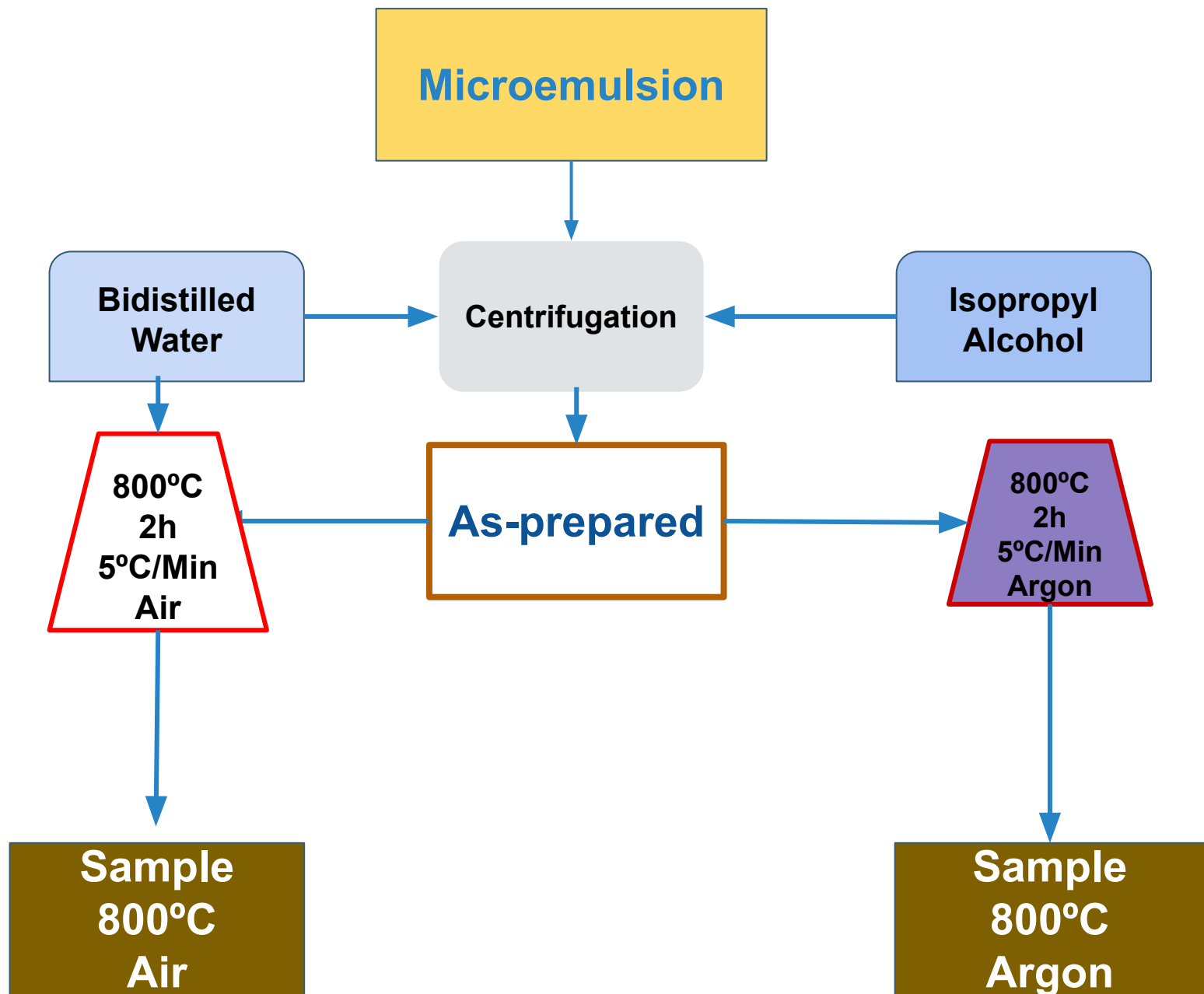
- Synthesis



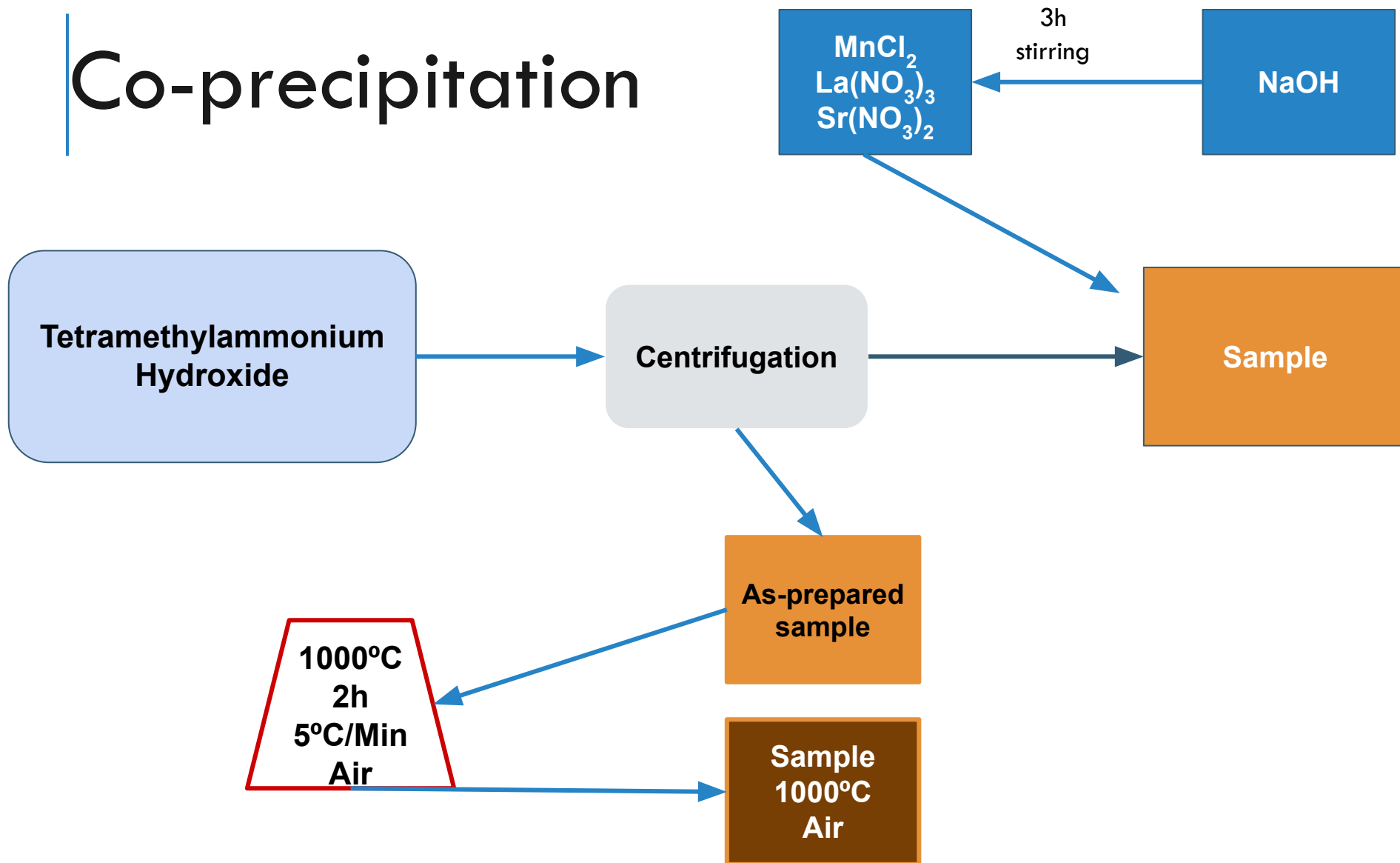
- Analysis

# Reverse Microemulsion





# Co-precipitation



# Methods

- Synthesis

Reverse microemulsion

Co-precipitation

- Analysis

XRD

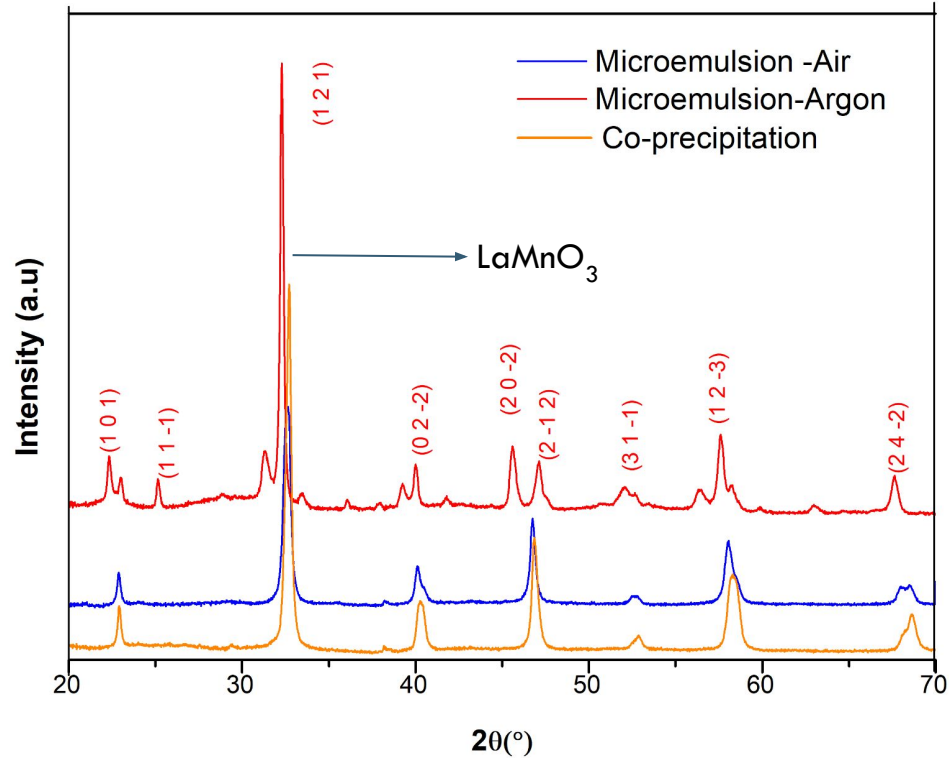
SQUID  
VSM

EDS

# Results

## X-Ray diffraction pattern

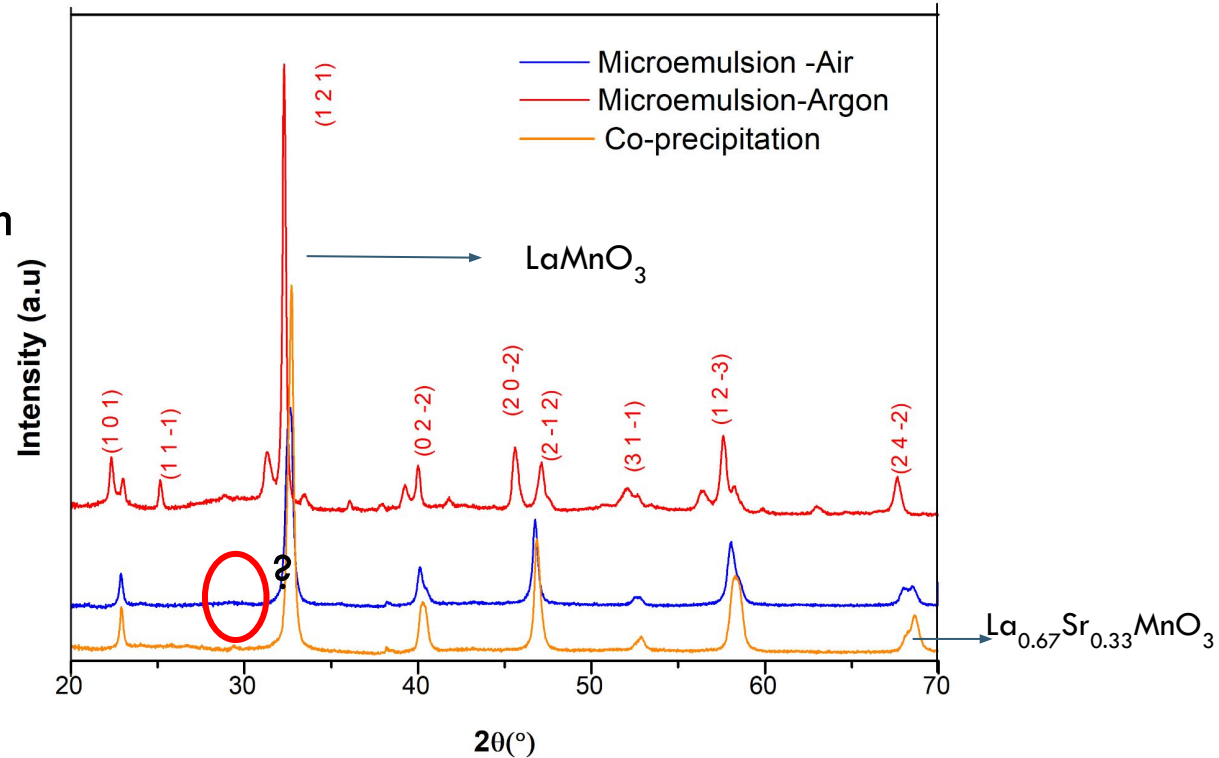
The diffraction spectrum changes with heat treatment. Why does it happen ?



# Results

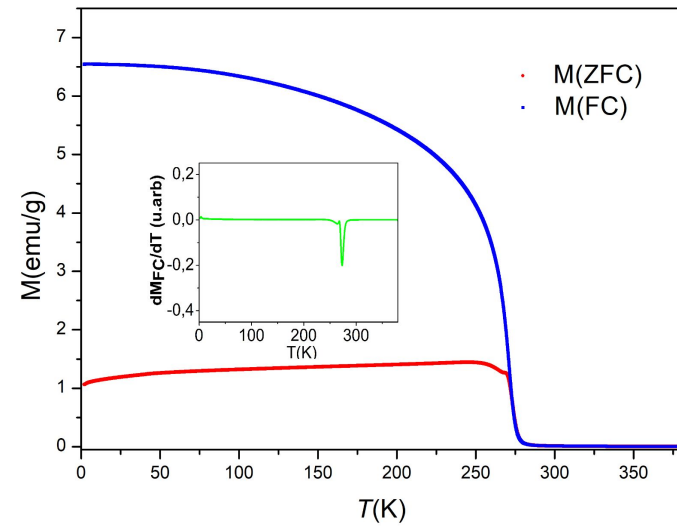
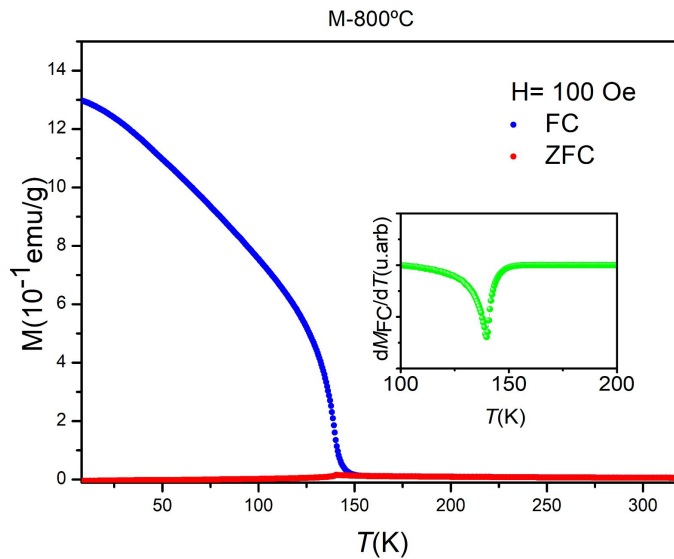
The diffraction spectrum changes with the heat treatment. Why does it happen ?

Is this pattern compatible with LSMO structure?



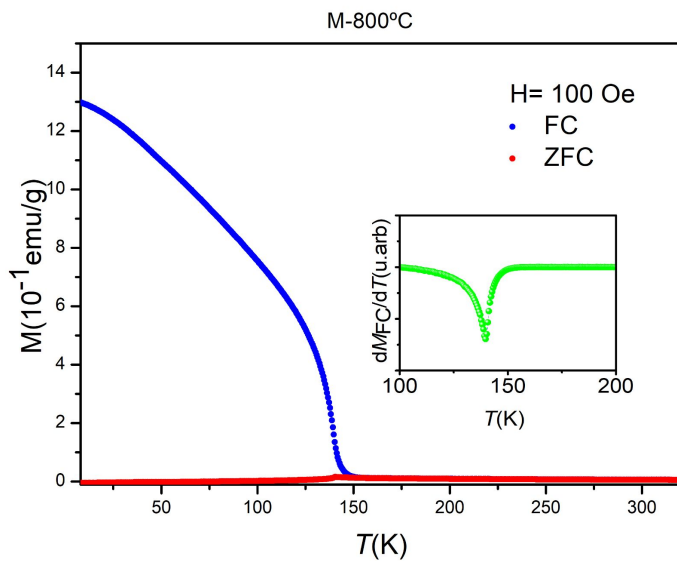
# Results

## Magnetic measurements

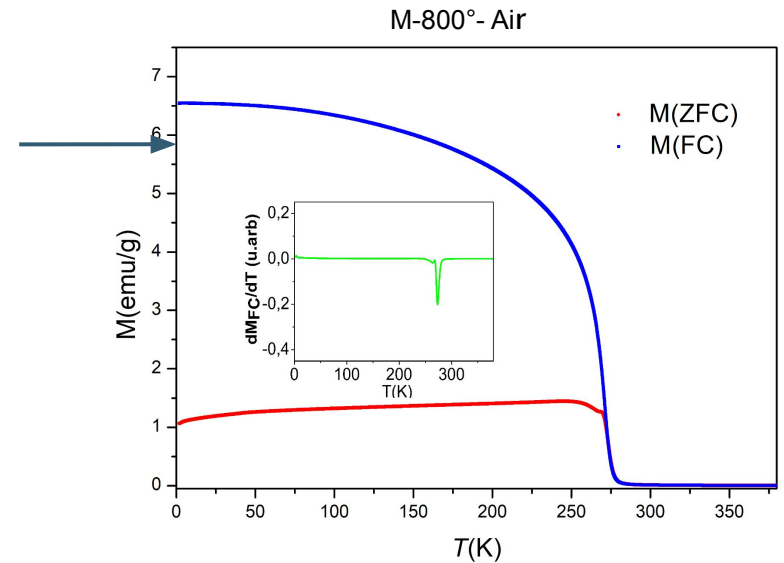


# Results

## Magnetic measurements

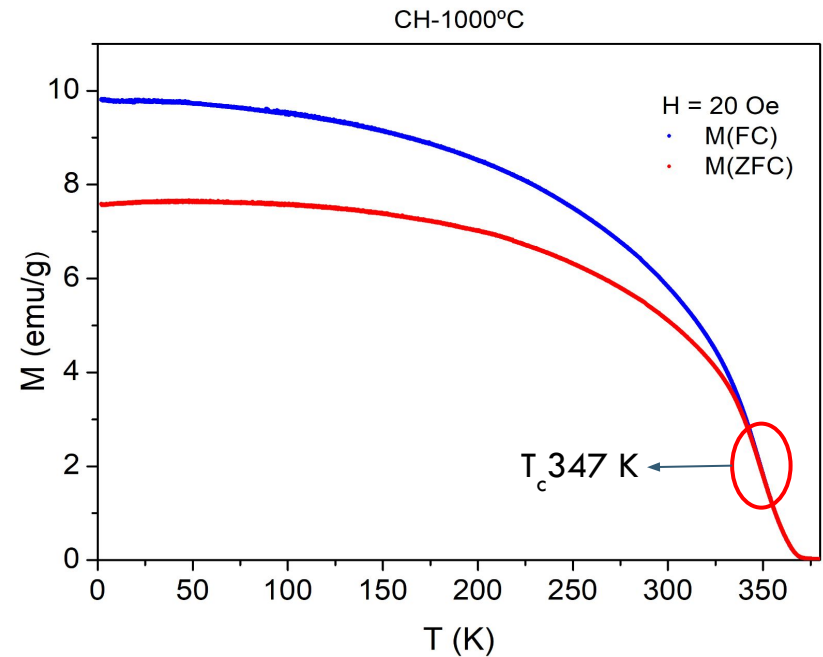
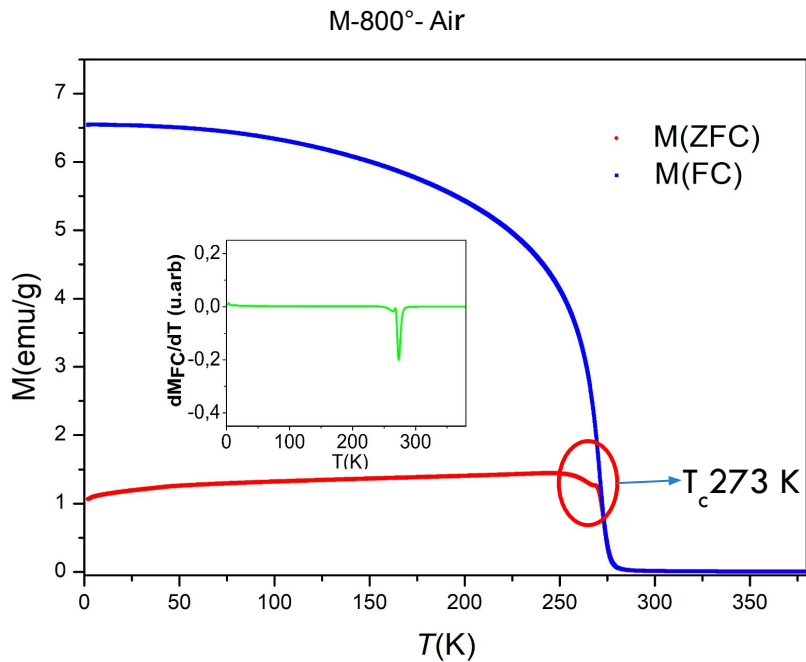


The Curie temperature increases in an air atmosphere



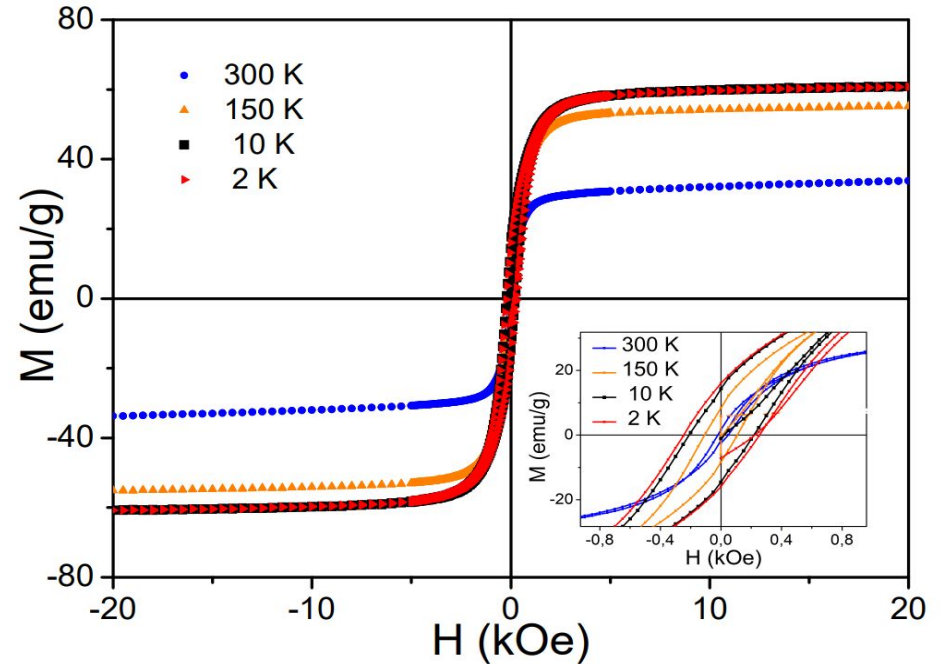
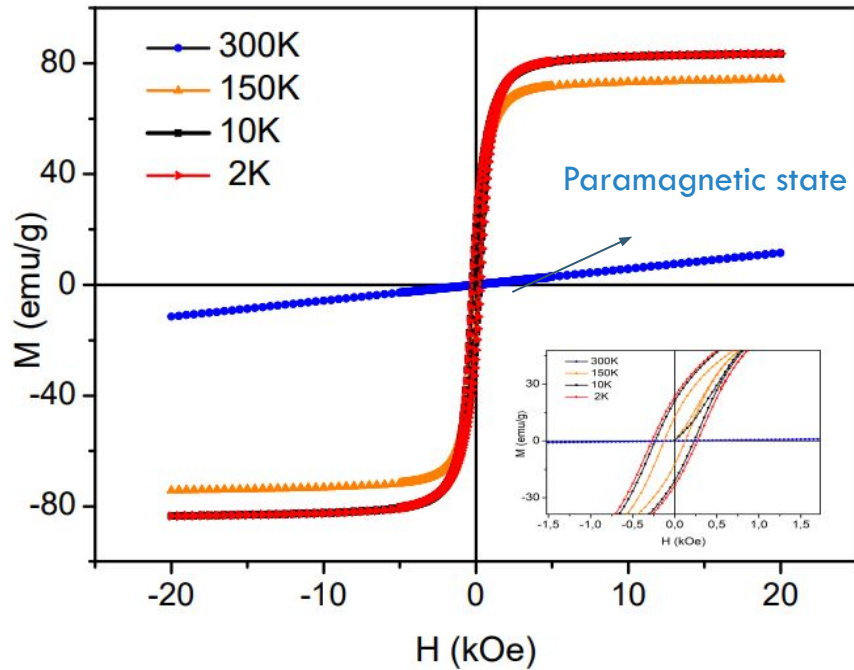
# Results

## Magnetic measurements



# Results

## Magnetic measurements



# Summary

Compounds in which a transition from the antiferromagnetic state typical of the stoichiometric  $\text{LaMnO}_3$  to the ferromagnetic state takes place.

# Summary

In the prepared compounds, a transition from the typical antiferromagnetic state of the stoichiometric  $\text{LaMnO}_3$  to the ferromagnetic state of LSMO takes place

Excess of oxygen, creates equal numbers of lanthanum and manganese vacancies since it was found that oxygen cannot be implanted in the interstitial positions of the closely packed perovskite structure.

# Acknowledgment



Thanks  
questions?

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