



# Ti-bearing apatites: synthesis, crystal chemistry, photocatalytic properties



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## Introduction

### Hydroxyapatite $\text{Ca}(\text{PO}_4)_3\text{OH}$

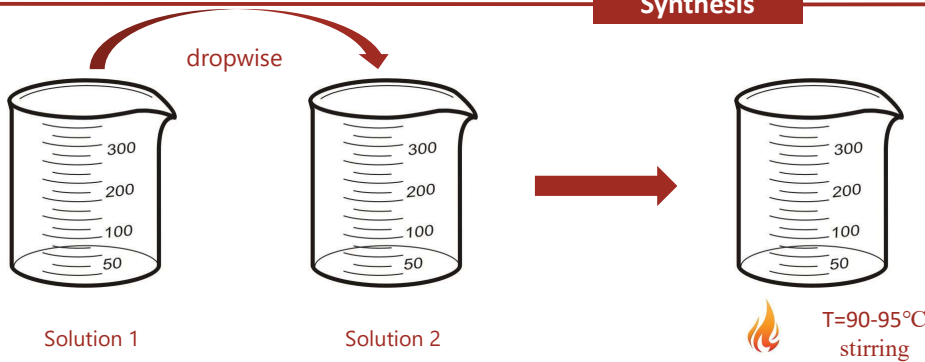
Biocompatibility  
 Bactericidal properties  
 Main mineral component of human bones and teeth

### Anatase $\text{TiO}_2$

Photocatalyst  
 Bactericidal properties  
 Photo-degradation of organic contaminants

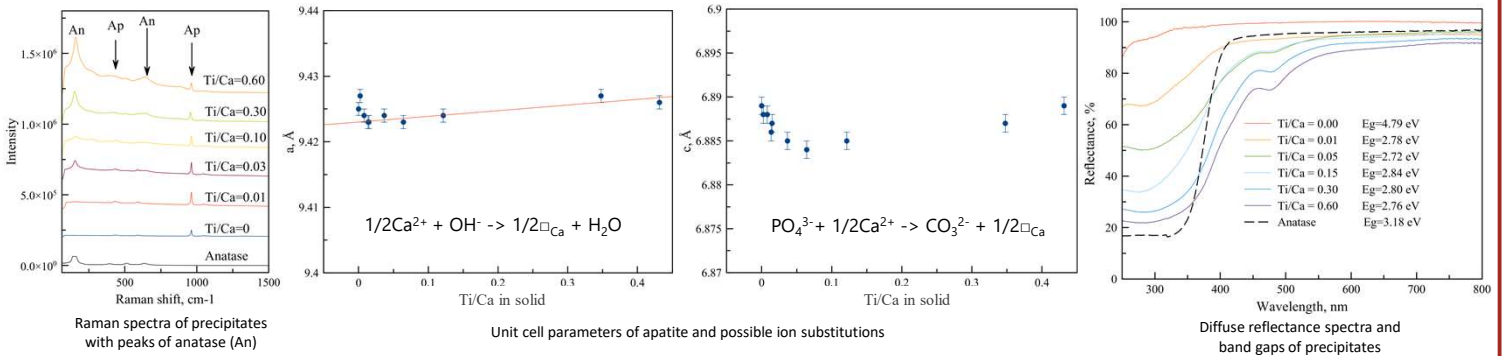
## Ti-bearing hydroxyapatite

## Synthesis

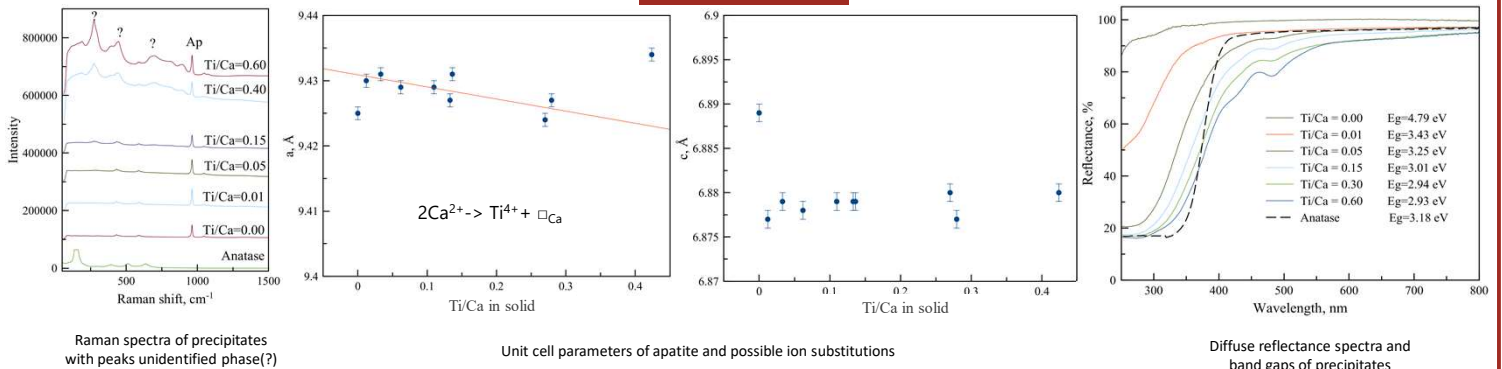


Series	Solution 1	Solution 2	pH
1	$\text{Ca}(\text{NO}_3)_2$ + $\text{TiCl}_3$	$(\text{NH}_4)_2\text{HPO}_4$ + $\text{NH}_4\text{OH}$	9
2	$(\text{NH}_4)_2\text{HPO}_4$ + $\text{NH}_4\text{OH}$	$\text{Ca}(\text{NO}_3)_2$ + $\text{TiCl}_3$ + $\text{HCl}$	9
3	$\text{Ca}(\text{OH})_2$ + $\text{C}_{12}\text{H}_{28}\text{O}_4\text{Ti}$	$\text{H}_3\text{PO}_4$	8

## 1<sup>st</sup> series



## 2<sup>nd</sup> series



## 3<sup>rd</sup> series

