



Ηράκλειο, 13/10/2021

## ΑΝΑΚΟΙΝΩΣΗ

### Η ΠΑΡΟΥΣΙΑΣΗ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

Της φοιτήτριας **Μανιαδή Μαρίας**, θα γίνει την

**Τρίτη 19/10/2021** και ώρα **12:00**

στην αίθουσα Β2 του Κτιρίου Χημείας

**Θέμα Διπλωματικής:**

**« 2D Hybrid Double Halide Perovskites »**

Για την παρακολούθηση της παρουσίασης δια ζώσης, το κοινό θα πρέπει να έχει τα απαραίτητα δικαιολογητικά (πιστοποιητικό εμβολιασμού, νόσησης ή ράπιντ τεστ).

#### **Abstract:**

The present Diploma Thesis deals with the synthesis of artificial 2D Hybrid Double Halide Perovskites, consisting of ordered materials where silver ( $\text{Ag}^+$ ) and indium ( $\text{In}^{3+}$ ), bismuth ( $\text{Bi}^{3+}$ ) or antimony ( $\text{Sb}^{3+}$ ). In the studied system silver and the trivalent metal order crystallographically to produce the new series of compounds with a general chemical formula of  $(4\text{-AMP})_2\text{AgMBr}_8 \cdot 0.5\text{H}_2\text{O}$  (4-AMP is the doubly protonated cation of 4-aminomethyl piperidine,  $\text{M}^{3+} = \text{In}, \text{Sb}, \text{Bi}$ ). These materials have become an active research area in the last 3 years, due to the diversity in their crystal structure, as well as their promising optical and electronic properties.

The new compounds, which possess the Dion-Jacobson structure-type, have been characterized by singlecrystal X-ray diffraction and their optical properties at room temperature were determined. The compounds possess a strong optical absorption in the visible likely deriving from a direct band gap transition. Moreover, selected members of the  $(4\text{-AMP})_2\text{AgSb}_{1-x}\text{Bi}_x\text{Br}_8 \cdot 0.5\text{H}_2\text{O}$  solid solutions were synthesized in order to study the evolution of the band gap as a function of the chemical composition. The present work edges one step further towards the understanding the structure-property relationships in these emerging, 2D Hybrid Double Halide Perovskites and the underlying physical properties that may lead to useful optoelectronic applications.