

Title: **Synthesis of nanostructured semiconductors and transition metal carbides by ultrasound**

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1. SUMMARY

In photocatalysis a nanostructured semiconductor is needed as a photocatalyst. To increase the catalytic activity of these semiconductors, co-catalysts like transition metal carbides have been investigated. Moreover, the catalytic behavior of these materials depends on the preparation method used.

Herein, the project is based on a bibliographic research about the use of ultrasound in the synthesis of the TiO_2 , ZnO and Mo_2C nanostructures.

A brief research taking into account the number of scientific publications in Web of Science database, has been done. The purpose of the research was to see the evolution in the amount of investigations about nanomaterials through the years.

In addition, an analysis and discussion of the most relevant sonochemical synthesis of TiO_2 and ZnO (as nanostructured semiconductors) and Mo_2C (as a TMC) has also been provided to see how ultrasounds impact the final product and through this way, to analyze its advantages and disadvantages.

Keywords: Nanomaterials, semiconductors, transition metal carbides, synthesis, ultrasound.