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Synchrotron radiation, an essential tool to understand matter at extreme conditions

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Abstract content

The synthesis of materials can be affected when it is performed under extreme pressure and temperature. For instance, high pressures reduce the bond distances altering the electronic properties of the material, allowing the formation of new bonds or the formation of different molecular or atomic arrangements. These variations can promote changes in physical and chemical properties of both reagents and products of a reaction. Thus, the combination of extreme pressure and temperature opens a window to a new world of possibilities: new compounds, new physical properties and new applications. However, in order to achieve very high pressures the reagents under study have to be micrometric in size, limiting with this its study and further characterization. Thus, synchrotron radiation is an essential tool to understand matter at extreme conditions.

Summary

Primary author(s) : Dr. JUAREZ-ARELLANO, Erick (Universidad del Papaloapan)

Presenter(s) : Dr. JUAREZ-ARELLANO, Erick (Universidad del Papaloapan)