

The New Landscapes of Uranium Mineralogy

Burns, P¹

¹University of Notre Dame, Indiana. United States

It has been eighty years since the discovery of fission of uranium in 1938, which enabled the beginning of the atomic age in 1945 as marked by the Trinity nuclear detonation. Although the heaviest natural element only has an average crustal abundance of 1.8 ppm, uranium is essential to more than 250 minerals recognized by IMA. Focusing on both classic and new localities, mineralogists have described more than 50 new uranium minerals in the past decade. Despite years of activity in synthetic uranium solid state chemistry, many of these new minerals reveal unprecedented compositions and structures, some of which are extremely complex. This presentation will provide an overview of uranium mineralogy and uranium mineral structures, with emphasis on recently discovered species and how they help to provide a more comprehensive understanding of the chemical properties of this fascinating element.