

Fuel cells appear as a promising technology, enabling the replacement of internal combustion engines in the automotive industry. Hydrogen fuel cells with a polymer membrane are particularly suitable for this application. Despite significant progress, this technology suffers from several drawbacks that hinder its widespread adoption. One of the main issues is the need for expensive platinum as a catalyst. A possible way to save costs is by using bimetallic catalysts based on platinum and inexpensive 3d transition metals like copper.

The preparation of these catalysts can, for instance, leverage the phenomenon of thermally induced segregation. A deeper understanding of platinum segregation in bimetallic PtCu layers could contribute to the development of a better and more cost-effective catalyst.

This study examined thin PtCu layers prepared using magnetron sputtering. Their structure, chemical composition, and morphology were determined, and platinum segregation was monitored by X-ray photoelectron spectroscopy, depending on the annealing temperature of the samples.