

Abstract Submitted
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Electrodeposition and Characterization of Nickel, Iron, Copper Thin Films and the Creation of Nanoporous Structures¹ JONATHAN YARRANTON, JENNIFER HAMPTON, Hope College — There has been much research in creating nanoporous platinum or gold thin films for catalysis, but there has not been as much work done with other, less noble metals. This research explored the deposition of nickel, iron, and copper ternary alloys using controlled potential electrolysis (CPE) and the selective removal of the copper with DC potential amperometry (DCPA) and linear sweep voltammetry (LSV) to create nanoporous structures. These structures have the advantage of increased surface area creating more efficient catalysts. All films were characterized before and after dealloying using scanning electron microscopy (SEM) and energy dispersive x-ray spectroscopy (EDS) for composition. The roughness of each of the films was characterized by the capacitance of the film, with higher capacitances indicating a higher electrochemical surface area.

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