

# Characterization of self-assembled films of NiGa layered double hydroxide nanosheets and their electrochemical properties

大学院自然科学研究科	後期課程	アルツンタシヨグル・オズゲ
トルコ共和国コチ大学	助教	ウグー・ウナー
大学院自然科学研究科	助教	伊田進太郎
〃	教授	後藤元信
〃	教授	松本泰道

## Abstract:

In this study, we have demonstrated the synthesis and delamination of a rarely studied NiGa layered double hydroxide (LDH) system. Hydrothermal treatment under agitation conditions at 200 °C for 4h resulted in the formation of highly crystalline NiGa LDHs in a shorter time than those synthesized without agitation. The LDH was delaminated into the individual nanosheets in formamide. The most significant finding in this study is the electrochemical behavior of interlayer ferricyanide anions intercalated with the layer-by-layer (LBL) assembly method. The morphology of LBL film with one layer is also monitored with atomic force microscopy. The cyclic voltammogram is similar to potassium metal hexacyanoferrate systems with its unique two-peak wave. Raman spectrum of the film revealed that the metal center of the interlayer cyano complex is in interaction with the  $\text{Ni}^{2+}$  of the hostlayer. It was concluded that the two-peak cyclic voltammogram of the film is a result of two different forms of the hexacyanoferrate in the interlayer.

(Journal of Solid State Chemistry, Vol. 181, No. 12, p. 3257-3263, 2008)