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Magnetic properties in multi-layer ferrite thin films via spin-spray deposition**Hyoungh Woo Yang**

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The progress in the electronics industry demands a number of new soft magnetic materials for inductive components in electronics. Recent developments of ferrites can fulfill the special requirements of electromagnetic interference (EMI) and near field communication (NFC) applications. Here, we have developed well-ordered multi-layer thin films with Mn-Zn ferrite and Ni-Zn ferrite on PI substrates by the spin-spray deposition method. Structure analysis indicates that the crystal structure of multi-layer ferrite thin film is spinel structure, which also has a columnar structure normal to the surface. The multi-layer ferrite thin films exhibit high permeabilities that exceed the Snoek limit for bulk Mn-Zn ferrite and Ni-Zn ferrite. Multi-layer ferrite thin films have relatively high permeability $\mu' \sim 500$ and $\mu'' \sim 1$ up to 50 MHz, and is promising to be used as thin film devices such as a magnetic applications. The spin-spray deposited Mn-Zn ferrite/Ni-Zn ferrite multi-layer heterostructures exhibiting high magnetic properties at both low and high frequencies provide great opportunities for fundamental studies and novel magnetic devices.

Biography

Hyoungh Woo Yang has research interest in designing of transition metal oxide materials and functional materials with remarkable properties, and an atomic-level understanding of fundamental principles of novel physical and mechanical phenomena under ambient or extreme conditions, by developing and utilizing strain engineering methods and other approaches.

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