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Magnetoelectric and Ferroelectric Properties of BiFeO3/Ni film Deposited by Pulsed Laser Deposition LI YAN, MUJIN ZHUO, Center for Integrated Nanotechnologies, Los Alamos National Laboratory, ZHIGUANG WANG, JIANJUN YAO, JIEFANG LI, DWIGHT VIEHLAND, Dept. of Materials Science and Engineering, Virginia Tech, QUANXI JIA, Center for Integrated Nanotechnologies, Los Alamos National Laboratory — To fabricate a layer by layer (2-2) magnetoelectric (ME) sensor, ferroelectric (FE) BiFeO3 film was directly deposited on ferromagnetic (FM) nickel foil by pulsed laser deposition (PLD) without oxide or noble metal buffer layer, which significantly lowers the cost of ME and FE devices, and makes it possible to deposit longer ME and FE bendable band by PLD. X-ray diffraction and transmission electron microscopy analysis confirmed that the BiFeO3 film was successfully deposited on the top of nickel foil. The BiFeO3 film had a saturation polarization and a piezoelectric d33 coefficient of 69 μC/cm2 and 52 pm/V respectively. The ME coefficient of the sample was 4mV/cmOe which was measured under 1 Oe AC magnetic field at 1 kHz frequency.

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