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Thermal stability of the nitrogen-implanted CeFe12 thin films

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In our previous study, we showed that CeFe12 thin films exhibit enhanced magnetism when implanted with nitrogen ion beam. Since this nitridated CeFe12 can be a candidate for next-generation permanent magnets, it is necessary to test thermal stability of the nitridated CeFe12. In this presentation, we performed vacuum annealing on the same ion implanted CeFe12 thin films at 300℃, 500℃, and 700℃, respectively to find thermal stability of the films. The surface morphology of the CeFe12 thin films before and after the vacuum annealing is monitored by atomic force microscopy. The structural changes were confirmed by X-ray diffraction. Especially, we found that the magnetism decreased after vacuum annealing in the elevated temperatures by nearly 84%.

Paper submission Plan

Yes

Best Presentation

Yes

Contribution track

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