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1773
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **DAVID N. LAMBETH**

Group Art Unit: **1773**

Serial No.: **10/415,757**

Examiner: **Holly C. Rickman**

Filed: **April 30, 2003**

For: **MAGNETIC MATERIAL STRUCTURES, DEVICES AND METHODS**

AMENDMENT UNDER 37 CFR 1.111

Mail Stop: Amendment

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

March 17, 2006

Sir:

In response to the Office Action dated December 19, 2005, please amend the above-identified application as follows:

Docket No.: 03017

CERTIFICATE OF MAILING

Express Mail Label No. EV 364696471 US

I hereby certify that, on March 17, 2006, the attached Amendment under 37 CFR 1.111 was deposited with the United States Postal Service as Express Mail utilizing the Express Mail Post Office to Addressee Service, postage pre-paid, addressed to:

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Barbara A. Konopski
(Signature)

Barbara A. Konopski

March 17, 2006

In the Claims:

Please amend Claim 157, as follows:

1-117 (Canceled)

118. (Previously Presented): A magnetic material structure comprising:

a substrate;

at least one bcc-d layer which is magnetic, forming a uniaxial symmetry broken structure; and

at least one layer providing a (111) textured hexagonal atomic template disposed between said substrate and said bcc-d layer.

119. (Previously Presented): The magnetic material structure recited in claim 118, wherein said substrate is single crystal.

120. (Previously Presented): The magnetic material structure recited in claim 118, wherein a surface of said substrate is amorphous or polycrystalline.

121. (Previously Presented): The magnetic material structure recited in claim 118, further comprising an amorphous layer on said substrate formed from an alloy of NiP, CrxTa1-x, CrxNb1-x, FexTa1-x, or FexNb1-x and $55<x<75$.

122. (Previously Presented): The magnetic material structure recited in claim 121, wherein said amorphous layer is formed and the surface of the said amorphous layer is then oxidized.

123. (Previously Presented): The magnetic material structure recited in claim 118, wherein the layer providing said hexagonal atomic template is formed from a fcc-d or hcp crystalline material.

124. (Previously Presented): The magnetic material structure recited in claim 118, wherein the layer providing said hexagonal atomic template is magnetic.

125. (Previously Presented): The magnetic material structure recited in claim 118, wherein said bcc-d layer is epitaxially grown on said (111) textured hexagonal atomic template and has a (110) crystalline texture, and at least one crystalline grain of said (111) textured hexagonal atomic template has epitaxially grown thereon at least two and not more than four dominate (110) orientational variants.

126. (Previously Presented): The magnetic material structure according to claim 118, further comprising:

a second layer providing a (111) textured hexagonal atomic template, wherein said second layer is magnetic.

127. (Previously Presented): The magnetic material structure according to claim 118, further comprising:

a second bcc-d layer which is non-magnetic.

128. (Previously Presented): The magnetic material structure according to claim 118, further comprising:

a second bcc-d layer which is magnetic.

129. (Previously Presented): The magnetic material structure according to claim 118, further comprising:

a second bcc-d layer wherein the crystalline orientation of the second bcc-d layer is epitaxially determined by said bcc-d layer.

130. (Previously Presented): The magnetic material structure according to claim 118, further comprising:

a second bcc-d layer; and

a second layer providing a (111) textured hexagonal atomic template wherein said second layer providing a (111) textured hexagonal atomic template is disposed between said bcc-d layers.

131. (Previously Presented): The magnetic material structure according to claim 118, further comprising:

a second bcc-d layer, which is magnetic; and

at least one oxide layer between said bcc-d layers.

132. (Previously Presented): The magnetic material structure according to claim 118, further comprising:

a second and a third bcc-d layers which are non-magnetic;

a fourth bcc-d layer which is magnetic; and

at least one oxide layer between said second bcc-d layer and said third bcc-d layer wherein said second and third bcc-d layers are disposed between said first and fourth bcc-d layers.

133. (Previously Presented): The magnetic material structure according to claim 118, further comprising:

a second bcc-d layer which is magnetic;

a second (111) textured hexagonal atomic template layer between said bcc-d layers; and

at least one oxide layer between said bcc-d layers.

134. (Previously Presented): The magnetic material structure recited in claim 118, wherein said bcc-d layer forming a uniaxial symmetry broken structure is composed of Fe or FeCo or an alloy of Fe or FeCo.

135. (Previously Presented): The magnetic material structure recited in claim 118, wherein said bcc-d layer forming a uniaxial symmetry broken structure is composed of an alloy of Fe or FeCo having one or more of the elements Al, B, Cr, C, Cu, Ni, N, Nb, Mo, V, Si, Ta, and Ti.

136. (Previously Presented): The magnetic material structure recited in claim 118, wherein the layer material forming said (111) textured hexagonal atomic template is composed of Ag, Al,

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