CLAIMS:

1. A stack, comprising:

a crystallographic orientation interlayer;

a magnetic zero layer disposed on the interlayer, the magnetic zero layer ~~being non-magnetic or having a saturation magnetic flux density (B_s) less than about 100 emu/cc and~~ comprising non-magnetic grains separated by a non-magnetic segregant; and

a magnetic layer disposed on the magnetic zero layer, the magnetic layer comprising ferromagnetic grains separated by a non-magnetic segregant, wherein the magnetic zero layer comprises the same elements as the magnetic layer, and a lattice mismatch between the interlayer and the magnetic layer is less than ~~about~~ 4 %.

2. The stack of claim 1, wherein a difference between full width half maximum (FWHM) of crystallographic rocking curves of the crystallographic orientation interlayer and the magnetic layer is less than ~~about~~ 0.35 degrees.

3. The stack of claim 1, wherein the magnetic zero layer comprises the same elements in different proportions as the magnetic layer.

4. The stack of claim 1, wherein a thickness of the magnetic zero layer is less than ~~about~~ 25 Å.

5. The stack of claim 1, wherein the magnetic layer comprises a first magnetic layer adjacent the magnetic zero layer and a second magnetic layer separated from the first magnetic layer by an exchange break layer.

6. The stack of claim 1, wherein the grains of the magnetic zero layer are columnar grains having an HCP crystalline structure and a (0001) growth direction.

7. The stack of claim 1, wherein the magnetic zero layer comprises one or more of Pt and Ru.

8. A method of making a stack, comprising:

depositing a crystallographic orientation interlayer;

depositing a magnetic zero layer on the crystallographic orientation interlayer, the magnetic zero layer ~~being non-magnetic or having a saturation magnetic flux density (B_s) less than about 100 emu/cc and~~ comprising non-magnetic grains separated by a non-magnetic segregant; and

depositing a magnetic layer on the magnetic zero layer, the magnetic layer comprising ferromagnetic grains separated by a non-magnetic segregant, wherein the magnetic zero layer comprises the same elements as the magnetic recording layer, and a lattice mismatch between the interlayer and the magnetic layer is less than ~~about~~ 4%.

9. The method of claim 8, wherein:

depositing the magnetic zero layer comprises depositing grains comprising CoCr and one or more of Pt and Ru separated by a segregant comprising an oxide; and

depositing the magnetic layer comprises depositing grains comprising a Co alloy separated by a segregant comprising the oxide, wherein the magnetic zero layer includes a higher percentage by volume of the oxide than the magnetic layer.

10. The method of claim 8, wherein depositing the crystallographic orientation interlayer comprises sputtering at a pressure less than ~~about~~ 80 mTorr.