

March 22, 2004

Appendix A: NVE is not involved in nanotechnology.

We have all changed the spin of atoms. Holding a magnet near a metal causes the metal's atoms to tilt or change their spin either to the North Pole "up" or to the South Pole "down". This change in spin causes the metal to either increase or decrease its resistance to electrical current. The direction of metal's spin can easily be read by the level of resistance, in the same way that an electron's charge can be read. But electrons lose their charge and have to either be constantly recharged ("DRAM") or wrapped up in insulation ("Flash") to keep them from losing their charge or memory. Once the spin of the metal's electrons is changed by the magnet they stay changed without needing more energy. And there is no wear and tear involved in changing the spin back and forth. This has nothing to do with nanotechnology. This is the field of electronics called **spintronics**.

Yes the Chinese plastics manufacturer that puts a magnet in a molded piece of plastic shaped like a little lady bug so we can hang notes on the refrigerator is in spintronics. Of course, it's harder to use a magnet to change the spin of electrons in a microscopically-thin layer of three metals that are stuck together; much less to place millions of these tiny three-layered-sheets-of-metals on half an inch. And forget about how hard it is to be able to zap one of the millions and change its spin while leaving all its little neighbors alone. Now that's a harder trick to do with a magnet than holding a note onto a refrigerator. But we bet that someone at IBM and Motorola is thinking hard about how long it will take Chinese semiconductor manufacturers to figure out the trick. But do you really think that any one at IBM or Motorola is thinking about NVE and its clueless MRAM fantasy-duo James Daughton and Daniel Baker? Oh stop.

This is an appendix to a research report of the same date titled "**NVE fails to provide any support for its Motorola claims.**"

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