BBC NEWS

Plastic promises dense data store

A common plastic used to keep monitor screens clear of fluff could soon be used as a high-density computer memory.

In the journal Nature, the US researchers behind the discovery say it could let them pack a gigabyte of data into a sugar cube-sized device.

The material is also very cheap to manufacture and data can be written down and read back from it quickly.

The researchers predict that it could take only a few years to turn their discovery into working devices.

Microscopic memory

The full name of the plastic is polyethylenedioxythiophene, usually abbreviated to Pedot, and it is a candidate for storage because it conducts electricity.

Before now this has led the transparent plastic being used as an anti-static coating for computer screens and other devices to keep them clear of dust and fluff.

But another use for the material has been found by Sven Moller and Professor Stephen Forrest from Princeton University working with Warren Jackson and Craig Perlov from the Hewlett-Packard Laboratories in Palo Alto, California.

In a recent paper in the journal Nature, the research team describe how they put blobs of Pedot between two grids of electrodes.

At low voltages Pedot conducts electricity but with a strong enough jolt of power it becomes permanently non-conducting.

The researchers used these polar properties to represent the 0s and 1s of digital memory in their Pedot/electrode sandwich.

Any device resulting from their work would be a "write-once, read-many" format and could perhaps be used to store films or music.

The researchers speculate that very dense memory blocks could be created by stacking the thin layers of the material on top of each other.

They team estimates that working devices could be up to 10 times denser than current hard disks.