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FP7-ICT-2007 - 2 - 224001

TERAMAGSTOR

Terabit Magnetic Storage Technologies

an RTD Project funded by
the European Commission



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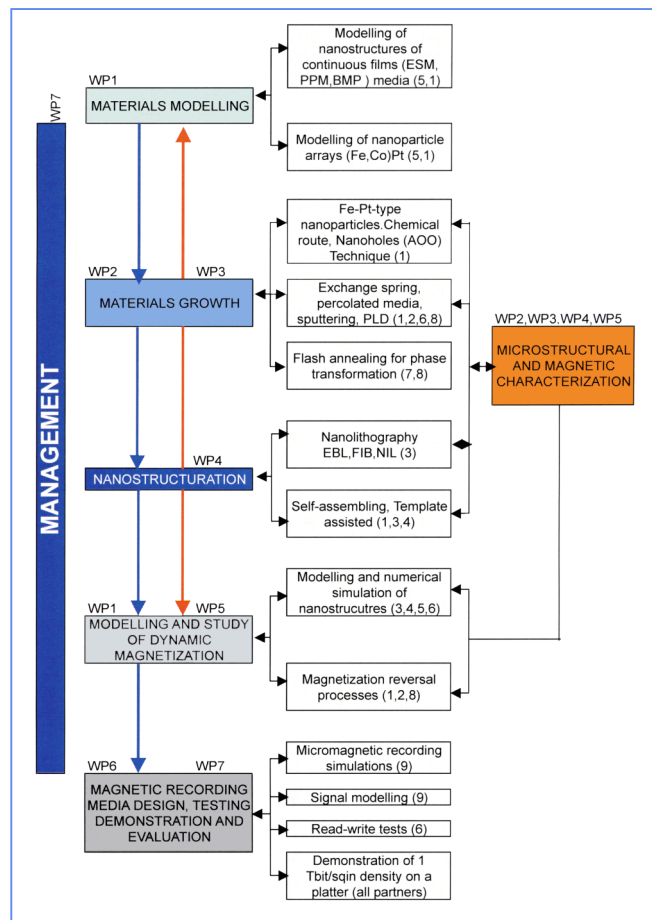
THE PROJECT

The TERAMAGSTOR project aims at designing, fabricating and testing future perpendicular magnetic storage media with areal density larger than 1 Tbit/in².

To overcome the technological barriers limiting the areal density, the proposed approaches address both key media feasibility issues (thermal stability, writability, signal to noise ratio) and low-cost, high-throughput media fabrication methods. The approaches are based on the development of advanced film media (exchange spring and percolated media), nanolithographically patterned and nanoparticles media patterned by templates through an integration of professional skills (chemists, physicists, engineers, materials scientists).

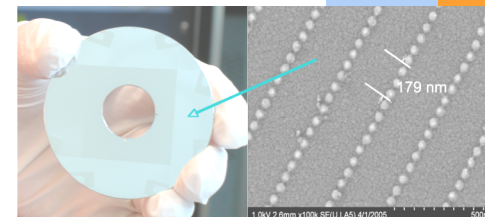
The activity will cover media preparation and characterisation, magnetization reversal processes, numerical micromagnetic simulations, measurements of write/read recording characteristics and signal modelling and processing. The innovation and the ultimate goal is to produce the first EU 1.8 /2.5 " HD with density in excess of 1 Tbit/in², through synergistic approach using EU groups and the exploitation by the two IND. It is based on previous work by most of the consortium members, which led to a record of 210 Gbits/in² (Descartes prize 2005).

The expected impact of TERAMAGSTOR is to open the way to a new generation of ultrahigh density magnetic recording media, through a basic investigation of magnetic phenomena in the nanoregime and the development of new fabrication processes, favouring the EU technological progress and competitiveness in the key technological area of magnetic storage and in general to the ICT business. The consortium is comprised of 9 partners from 5 EU and one associated countries and includes 3 National Research Centers, 3 Universities, one SME and two large Industrial companies related to ICT.



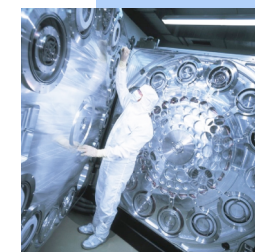
TERAMAGSTOR FLOW DIAGRAM

1=NCSR"D"; 2=CNR; 3=CNRS; 4=UPMC;
5=TUW; 6=TUCH; 7=FHR; 8=OERLIKON; 9=ST



Example of high - density patterned disk (LPN-CNRS).

Circulus-14 hard-disk deposition system (OERLIKON)



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