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Thanks to you all!

The conference is now finished. We are now updating the website with photos of this great event. See also : https://www.facebook.com/cmd25jmc14/timeline

We really want to thank you all, exhibitors and sponsors, mini-colloquia organizers, all invited, plenary and regular speakers and poster presenters, but also the scientific and local comittees, including the volunteer students. You all have contributed to the success of the conference!

Welcome to Condensed Matter in Paris!

"Condensed Matter in Paris" is an international conference covering all aspects of condensed matter physics, including soft condensed matter, liquid physics, biophysics, materials science, quantum physics and quantum simulators, low temperature physics, quantum fluids, strongly correlated materials, semiconductor physics, magnetism, surface and interface physics, electronic, optical, structural, and mechanical properties of materials, acoustics, and disordered media. An important place will be granted to interdisciplinary topics as well as to the development of research infrastructure in Europe.

The scientific program will consist of a series of plenary and semi-plenary presentations and mini-colloquia. Within each mini-colloquium, there will be invited lectures, oral contributions and posters.

"Condensed Matter in Paris" is jointly organised by the Condensed Matter Divisions of the French Physical Society SFP and of the European Physical Society EPS, and will unite the 14th Journées de la Matière Condensée (JMC14) and the 25th Conference of the Condensed Matter Division of the EPS (CMD25) in a single event.

"Condensed Matter in Paris" is the next in the series of biyearly JMC and CMD conferences, the last of which were held in Montpellier and Edinburgh, respectively. It will also host the biyearly French-Singaporean workshop on physics, which, this year, will have "Graphene" as its main theme.

The meeting will be held from August 24th through August 29th, 2014, between the Luxembourg gardens and Port Royal in the heart of Paris.

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Functional nanomagnets by FEBID
How to make them - How to use them

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Ferromagnetic nanomagnets exhibit excitingly different magnetic properties from their parent bulk material. Such nanomagnets are expected to revolutionize, in the future, a wide range of technological applications. In many cases, technologically important magnetic properties such as susceptibility, coercivity and remanence are significantly enhanced by the nanometre structuring. Many of their applications require the nanomagnets to be in the single domain state, to have a well-controlled shape-aniosotropy, or to create well-coordinated arrays. Consequently, it is still a challenge to produce ordered arrays of ferromagnetic nanodots, nanowires and nanopillars. Such arrays of planar nanomagnets can be fabricated by lithographic structuring of magnetic materials. However, the fabrication of 3.dimensional nanomagnets with varying height is still a challenge due to the lack of suitable fabrication methods. So, the research on applications requiring these 3-dimensional nanomagnet arrays is still in its infancy.

Here we present focused electron beam induced deposition as a direct-write approach for directly depositing Fe and Co nanomagnets. The FEBID nanofabrication of functional magnetic nanostructures was performed using iron penatcarbonyl and dicobaltoctacarbonyl as metalorganic precursors. For precursor injection a carrier-gas based injection system was implemented, which represents a technological novity in FEBID. In a systematic study of the FEBID process the effect of process parameters - such as gas flux, acceleration voltage, beam current and scan speed - on the deposition rate and on the material purity of the nanomagnets was clarified. The magnetic behavior of the deposited nanomagnets was investigated by magnetic force microscopy (MFM) and revealed a single domain structure. With nanomagnets with varying thickness a strong dependence of the remanescence on the structure thickness (Fig. 1) was observed.

Using these single-domain nanostructures, in this review we present two examples for the FEBID-typical exceptional position control at the nanoscale. The position control on the deposition of magnetic nanopillars is demonstrated by depositing a FEBID-made magnetic tip on top of an atomic force microscopy cantilever. (Fig.2). The potential to reliably deposit complex arrays of nanomagnets is proven by FEBID fabricated nanomagnetologic (NML) devices (Fig.-3). Concluding, in a detailed discussion we will survey potential applications of FEBID nanomagnets for advanced data processing and for sophisticated magnetic sensor systems.

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