

Post-doctoral position

The study, realized in the framework of the European Clean Sky project, deals with the development of a new iron-cobalt soft magnetic alloy which provides a combination of both high mechanical strength and moderated iron losses. This alloy will permit to access to higher speed of electric generator increasing the mass power density.

This material, recently patented, has been demonstrated on laboratory scale, but it is still roughly defined as a new workable material. Then, it needs to be optimized and fully characterized with respect to working solicitations.

Such a high strength new FeCo alloy will be defined in terms of processing parameters corresponding to a high yield stress whereas several metallurgical ways will be studied to get lower magnetic losses than previous known ones without a marked decrease of the yield stress.

For that, complementary processes such as thin foils assembly, recovery or texturization will be used to reach this later target, with the help of ICMMO at the “Université de Paris-Sud” (Dr. A.L. Helbert). After optimization of the metallurgical microstructure, the material will be deeply characterized mechanically and magneto-mechanically (including influence of uni- or bi-axial stresses on the magnetic properties) by a second partner (LMT, Cachan – Prof. O. Hubert).

Candidate profile:

The candidate should provide a Ph.D. in Materials Science and have a good knowledge in mechanical and magnetic property characterization. He should prove enough autonomy to run the experiments. A motivation letter, CV, recommendation letter(s) and at least two contacts are asked. The position is available as soon as possible for 18 months (9 months at ICMMO and 9 months at LMT).

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