

## 2020 -2021 - Activity Report Summary

During these stages of the project, the technological elements for preparation of magnetic particles belonging to the Fe- (Cr, Ti, Mn) -Nb-B systems for applications in cancer therapy have been established. The technological elements comprised the preparation of the alloys from the mentioned family, the obtaining of amorphous ribbons by a melt-spinning process with subsequent rapid cooling, the thermal embrittlement treatments and the mechanical grinding of the ribbons to obtain amorphous particles with controlled dimensions.

Their representative magnetic characteristics were tested in order to assess the required specific properties, such as saturation magnetization and Curie temperature, for the applications foreseen by the project. The conditions for the preparation of ferrofluid based on these particles were well established while the magnetic and stability characteristics of the ferrofluid were thoroughly investigated and highlighted as important characteristics for the interaction with living cells, the latter investigation being foreseen in the next stage of the project.

The paper entitled **“Fe-Cr-Nb-B ferrofluid for biomedical application”** was sent for publication to the ISI-journal **“Nanomaterials”**, IF 5, while **three scientific papers** with subjects from the project program were presented at international scientific events such as **INTERMAG 2021 Conference, Lyon, France, 26-30 April 2021**, 13th International Conference on **Physics of Advanced Materials (ICPAM-13)**, 24 – 30 September, 2021, Costa Brava, Spain 2021 and **Joint European Magnetism Symposia conference JEMS**, 7-11 December 2020, Lisbon.