

2022 - Activity Report Summary

During the 3rd reporting period of the OPTIMAG project, we carried out specific tests for various applications, in order to establish the optimum compositions of the most suitable magnetic particles for each purpose. The optimum technological elements that lead to the best results for each application have been highlighted. In the end, a **technological sheet** that includes all the technical conditions for obtaining the Fe-(Cr,Ti,Mn)-Nb-B magnetic particles in the laboratory have been created.

The paper entitled [*Fe-Cr-Nb-B ferrofluid for biomedical application*](#), by A.E. Minuti, G. Stoian, D.-D. Herea, E. Radu, N. Lupu and H. Chiriac, has been published in *Nanomaterials* **12**(9) (2022) 1488 [IF = 5.719].

The paper entitled *Fe-Cr-Nb-B magnetic particles and adipose derived mesenchymal cells, triggers for cancer cells apoptosis by magnetomechanical actuation*, by H. Chiriac, A.E. Minuti, D.-D. Herea, L. Lăbușca, G. Ababei, G. Stoian, C. Stăvilă and N. Lupu, was submitted for publication in *Scientific Reports* in October 2022 [FI = 4.996].

2 papers have been presented as oral contributions to 2 international conferences:

- 1) "*A simplified protocol for preparation of cell based biological samples for observing nanomaterial surface adherence using scanning electron microscopy imaging*", by A.E. Minuti, D.-D. Herea, L. Lăbușcă, G. Stoian, N. Lupu and H. Chiriac, presented at the [*Tissue Engineering and Regenerative Medicine International Society \(TERMIS\) European Chapter Conference 2022*](#), Krakow, Poland, 28 June - 1 July 2022.
- 2) "*A ferrofluid based on Fe-Cr-Nb-B magnetic particles for biomedical application*", by A.E. Minuti, G. Stoian, D.-D. Herea, E. Radu, N. Lupu and H. Chiriac, presented at the [*2022 Joint European Magnetic Symposia – JEMS2022*](#), Warsaw, Poland, July 24 - 29, 2022.