Notice of Intent (NOI):
PostDoc Opportunity on Modeling and Simulation of Ferrofluid Interfaces

The Low-Gravity Science and Technology Laboratory at the Georgia Institute of Technology is looking for highly qualified candidates for a PostDoc position on ferrohydrodynamic modeling and simulation. The ideal applicant will:

- Have a strong background on the modeling and simulation of ferrohydrodynamic flows, with particular emphasis on the equilibrium and stability of static ferrofluid interfaces subject to magnetic, gravitational, and capillary forces.
- Be familiar with fundamental concepts of magnetostatics and, particularly, with the modeling of permanent magnets and electromagnets.
- Have excellent interpersonal and teamwork skills and be willing to lead a team of two PhD students on a demanding US-government-funded project.

In addition:

- A general background in computational fluid mechanics and ferrofluid experimentation will be positively valued.
- Experience in the synthesis and characterization of ferrofluid solutions is not required but will be positively valued.

The purpose of this NOI is to identify promising candidates for a future Georgia Tech Careers solicitation. The successful applicant will be hired by the Georgia Institute of Technology for a period of at least **8 months** and a salary of **70.000 USD/year** with an anticipated **October 2023 start date**. Interested candidates must have a PhD in a related field by September 30th, 2023. NOIs should be submitted as a single PDF package to alvaro.romerocalvo@gatech.edu by July 1st and should include:

1. One-page letter detailing any relevant background and assessing the alignment with the solicitation.
2. Curriculum Vitae with educational and work experience, honors and awards, list of journal articles, and list of conference publications and presentations to date.

Relevant references:

- Romero-Calvo, Herrada, M. A., Cano-Gómez, G., Schaub, H. (2022). Fully coupled interface-tracking model for axisymmetric ferrohydrodynamic flows. *Applied Mathematical Modelling*, *111*, 836–861. https://doi.org/10.1016/j.apm.2022.06.046
- Romero-Calvo, Á., Cano Gómez, G., Castro-Hernández, E., & Maggi, F. (2020). Free and Forced Oscillations of Magnetic Liquids under Low-Gravity Conditions. *Journal of Applied Mechanics, Transactions ASME*, *87*(2). https://doi.org/10.1115/1.4045620
- Romero-Calvo, Á., Cano-Gómez, G., Hermans, T. H. J., Benítez, L. P., Gutiérrez, M. Á. H., Castro-Hernández, E., Parilla Benítez, L., Herrada-Gutiérrez, M. Á., & Castro-Hernández, E. (2020). Total magnetic force on a ferrofluid droplet in microgravity. *Experimental Thermal and Fluid Science*, *117*, 110124. https://doi.org/10.1016/j.expthermflusci.2020.110124
- Mallinson, J. C. (1973). One-Sided Fluxes — A Magnetic Curiosity? *IEEE Transactions on Magnetics*, *9*(4), 678–682. https://doi.org/10.1109/TMAG.1973.1067714