



<p>Position</p>	<p>This is a 12 month CDD position in the context of the project NeuroMorph that is funded by the <i>Institut Carnot "Logiciel et Systèmes Intelligents"</i></p> <p>The CDD is planned to commence on 2 January 2023.</p>
<p>Project</p>	<p>NeuroMorph is a project to demonstrate the function of a neuromorphic architecture device that utilises biological memristors [1]. The biological memristors are NhaA membrane transport proteins assembled in a network of biological compartments in the device. The advantage of NhaA proteins is that the transconductance is driven by ion gradients and not by applied electrical energy, hence the device will function without any of the usual design issues encountered with circuits comprising electronic memristors, crossbars and/or CMOS.</p> <p>The person employed in this CDD position will develop 2 proof-of-concept demonstrations. The first will demonstrate that the neuromorphic device can generate pH gradients that influence the excitability of nerve cells, using a novel microfluidic device we have developed [2]. This chip has a novel architecture that allows the connection between the nerve cells and the device. The chip provides a quantifiable output to be measured from that connection. The second will demonstrate that the neuromorphic device can generate stable electric power to provide a next-generation green bio-energy source.</p> <p>[1] Martin DK, Thélu J, Alcaraz JP, Maccarini M, Zebda A, Cinquin P, Mauri M (2022). Nanostructured biomimetic neuromorphic system. <i>PCT/EP2022/057225</i>.</p> <p>[2] Martin DK, Picollet-D'Hahn N. <i>US 11,268,961</i></p>
<p>Research Team</p>	<p>This position is in the research team SyNaBi (https://www.timc.fr/SyNaBi) that is part of the laboratory TIMC-IMAG (UMC 5525)</p> <p>SyNaBi is a multidisciplinary research team that takes a bioinspired approach to develop innovative biotechnologies for implanted medical devices and diagnostics.</p> <p>SyNaBi has an active fundamental and applied research activity (<i>funded by several agencies including ANR, SATT/Linksium, Ligue Contre Cancer</i>) in the domains of:</p> <ul style="list-style-type: none"> • biomimetic membranes and biocompatible polymers, • biophysics and modelling, • molecular and cellular biology, • bioelectrochemistry, • electrophysiology.
<p>Information</p>	<p>Questions on this position can be directed to Prof Donald Martin, Head of the team SyNaBi (don.martin@univ-grenoble-alpes.fr)</p>
<p>Your Profile</p>	<ul style="list-style-type: none"> • engineer with a Master's degree in Biomedical Engineering, • demonstrated expertise in microfluidic systems, biomimetic hydrogels, and experience in cell culture, • able to work collaboratively in a dynamic and multidisciplinary team.
<p>Application Process</p>	<p>Applications including a CV and the names of 3 referees should be emailed to Prof Donald Martin (don.martin@univ-grenoble-alpes.fr) before 14 December 2022</p>