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## Polymers and topographies to investigate neural stem cell culture and differentiation under electric fields

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Investigation of materials and methods to culture and differentiate stem cells is a very interesting research subject with potential high impact in medicine, in applications ranging from therapy to drug delivery. In particular, the use of electric fields in neural stem cells differentiation is being widely studied. This research has a strong component on materials development, in particular polymers, both conductive and insulators, as a culture supporting substrate. We have been investigating the use of conjugated polymers for this end as they allow versatile interactions between cells and flexible materials, processed from solution, while providing electrical stimulus, which is particularly relevant when targeting differentiation of neural stem cells. In addition, we have also been exploring the use of scaffolds created by 3D printing to explore the combined effect of topography and electric stimulus on neural stem cell culture and differentiation. In this presentation, author will give an overview on the general use of polymers for this purpose and present the latest results.

### Biography

Jorge Morgado has completed his PhD in Chemical Engineering from Instituto Superior Técnico and Post-doctoral studies from the Cavendish Laboratory, Cambridge, UK. He is Associate Professor at IST and Vice-president of IST for academic affairs. He has published more than 125 papers in reputed journals.

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