



**Prof. Sergio M. Rezende**

Departamento de Física,  
Universidade Federal de Pernambuco,  
Recife, Brazil

## “Spintronics: Fundamentals and recent developments”

Spintronics is the field of physics and technology that makes use of the electron spin to transport and process information. The birth of this field dates to the 1980s and was triggered with the discovery of the Giant Magnetoresistance in magnetic multilayers. In the 2000s this field gained new impulse with the discovery of several phenomena involving spin currents and ferromagnetic films, such as the spin Hall effect, the inverse spin Hall effect, and the spin pumping process. In metallic layers a spin current is produced by electrons with opposite spins moving in opposite directions, so that there is a net spin flux with no net charge flux. In ferromagnetic insulators spin currents are carried by spin waves with no Joule heating since there are no particles moving. More recently, several newly observed phenomena have provided new impetus to the field, such as the spin-Seebeck effect in ferro-, ferri- and antiferromagnetic nanostructures, and the spin-charge conversion by the inverse Rashba-Edelstein in graphene and other 2D materials, in topological insulators, and in Weyl Semimetals,. The discovery of these phenomena has opened new possibilities for the development and applications of spintronics. In this talk I will present the physics underlying some of these effects, review recent developments in spintronics, and present results obtained in our group at UFPE.

Seminar will be via:



Zoom event

<https://bit.ly/3xLWFck>

Live streamed – YouTube Channel



<https://youtu.be/1Mo8zH9pPzQ>

### Contacto

[almamagnetism@gmail.com](mailto:almamagnetism@gmail.com)

**June 25th, 2021**

12:30 p.m. (México)

12:30 p.m. (Colombia)

12:30 p.m. (Perú)

1:30 p.m. (Cuba)

1:30 p.m. (Chile)

2:30 p.m. (Brasil)

2:30 p.m. (Argentina)



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