

## Advanced Transmission Techniques for Optical Communications Systems: What can we learn from wireless systems

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**1:30 pm - 2:30 pm**

**Room: BAR II 63 a**

**Abstract:** Until recently, spectral efficiency wasn't an important issue in the design of optical communication systems, due to the large spectrum available in the visible light domain. More recently though, the capacity of installed optical fibres has been reaching its limits, and increasing the spectral efficiency seems to be a better proposition than setting up new fibre links. Besides that, newer applications, such as short-range fibre links for data centres and visible light communications also pose different challenges. On the other hand, spectral efficiency has always been of paramount importance in wireless systems, and many of the techniques currently employed in these systems, such as coherent detection, multicarrier modulation, adaptive modulation and coding, and even MIMO, are currently finding their way also in optical communications systems. In this talk, we will give an overview of how these techniques can be applied in different optical environments, such as long- and short-distance fibre links as well as wireless optical systems.

**Bio:** André Noll Barreto graduated in Electrical Engineering at the Catholic University (PUC) in Rio de Janeiro, Brazil in 1994, where he also earned a master's degree in 1996. In 2001 he obtained his Dr.Ing. (summa cum laude) at the Dresden University of Technology, Germany. He is since 2009 assistant professor at the University of Brasília (UnB), Brazil. Previously, he also held positions at the IBM Research Center in Zurich, Switzerland, at Claro, in Rio de Janeiro and at Nokia Institute of Technology (INdT), in Brasília. He is the author of four international patents and numerous articles in journals and international conferences. His current research interests are PHY and MAC for broadband wireless communication systems, spectrum sensing for cognitive radio, and transmission techniques for fibre and wireless optical communication systems.

