



DSP for Next Generation Fibre Communication Systems

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Message from the Guest Editors

Currently, the so-called fifth generation of fibre-optic systems has been benefited by the advances in high-speed digital signal processing (DSP) and the global adoption of coherent detection. Key to this success has been the mitigation of linear impairments, such as, chromatic dispersion and polarization mode dispersion by appropriate DSP algorithms, leaving fibre nonlinearity and amplified spontaneous emission as the next most important barrier. Even with multi-mode/multi-core fibre systems, the nonlinearity impact can't be avoided. As a result, the development of advanced digital methods will be crucial for the capacity expansion of next generation fibre communication systems.

Topics include, but are not limited to the following:

- Advanced Digital Back Propagation methods
- Volterra based nonlinear equalization
- Machine learning based nonlinear DSP methods
- MIMO non-linear equalizers for few mode/core transmission systems
- DSP for multi-carrier transmission systems (OFDM/Nyquist)
- Channel coding in the presence of non-Gaussian noise
- Mixed signal processing
- Autonomous transponder cooperation/transponder o





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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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