Optical Power Excursion Prediction in EDFA with Machine Learning

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Abstract:

We report on a Machine Learning approach based on artificial Neural Networks to predict optical power excursion in Erbium Doped Fiber Amplifiers. Its flexibility and adaptability could be valuable for future optical networks dealing with the negative impact of this aforementioned physical layer impairment.

Mini-Bio :

Prof. Catherine Lepers received her PhD for research addressing the application of nonlinear dynamics in lasers from the University of Lille, France, where she subsequently joined as an Associate Professor to pursue research in this field. In 2007, she received the diploma “Habilitation a Diriger des Recherches” (HDR) from the University of Lille, France. From 2000 to 2008, she has performed research on Fiber Bragg Gratings, Photonic Crystal Fibers and OCDMA communications in Telecom Paristech as associate researcher. In 2008, she joined Telecom SudParis, France where she is currently Full Professor. She is responsible of the research group “Optics and Photonics” in SAMOVAR laboratory (UMR CNRS 5157). She is Dean of the Faculty since 2018. She has managed several national and European projects devoted to home networking, ROADM node evaluation and multilayer network dimensioning. Her present research topics concern Machine Learning in Optical Networks. She is author or coauthor of more than 100 technical papers and communications.