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CORRECTION

Correction to "Nonlinear Distortion Equalization in Multi-Span Optical Links Via a Feed-Forward Photonic Neural Network"

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This note clarifies a limited set of points in the published article. All experimental and simulated datasets, figures, performance trends, and conclusions are unchanged. The correction concerns (i) the interpretation of the parameter P_{in} in the *experimental* recirculating-loop description, (ii) two parameter values/signs reported in Table 2, (iii) the distinction between experimental and simulated power restoration across loops, and (iv) a few typos in the text. We apologize for any inconvenience that may have occurred.

In the experimental sections, P_{in} must be read as the optical power entering the fiber span at the *first* loop only. In the measurements, the loop gain was adjusted for every transmission scenario to ensure that the power reaching the receiver matches the same reference value used for the 0 km case (including the effect of transients in the final amplification stages). As a consequence, the power entering the fiber is not strictly constant over all recirculations and can deviate from the nominal value set by P_{in}. The deviation is limited: in the worst-case configuration ($P_{in} = 9$ dBm at the first loop), the input power in the fiber decreases by a total maximum of 4 dB across the loops, while still preserving the intended nonlinear propagation regime. Therefore, throughout the paper, any statement suggesting that P_{in} is identically restored at every loop in the experimental setup should be interpreted as "the loop gain is tuned to meet a fixed RX reference power", not as "a constant per-span fiber input power".

Table 2 contains two reporting inaccuracies. The value of the "Losses in a single loop round-trip" must be $l_s = 26$ dB (not 18 dB). In addition, the group-velocity-dispersion coefficient β_2 must carry a negative sign (consistent with the sign convention implied by a positive dispersion parameter D). These are table/reporting corrections only; they do not alter any plotted results or conclusions.

The simulations differ from the experimental loop with respect to power restoration. In the simulated scenarios, the input power in the fiber is restored exactly to the target values (e.g., P_{pr} and, when applicable, P_{pu}) at every loop. Thus, statements in the paper about exact per-loop restoration apply to the simulated environment, whereas the experimental environment exhibits the limited loop-to-loop power variation described above. With this interpretation, the comparison between experiments and simulations remains valid, and the main conclusions of the work are unchanged.

Finally, typo corrections are applied as follows. In the first paragraph of Section 3.2, the worst-case scenario for SPM equalization is obtained by fixing the probe input power in fiber to $P_{pr} = 10$ dBm. In the penultimate sentence at the end of Section 4, the 13 dB BER reduction provided by the PNN in 100G SPM equalization (simulated) is obtained for $P_{pr} \approx 8$ dBm and $L \approx 350$ km. After Equation (4) in Section 5, the correct VOA to be included among the contributions to the terms l_s is VOA 2, according to Figure 13.

TABLE 2 | Parameters used in the simulated setup. Section Simulation Setup in the original paper provides a more detailed description of each table entry.

Parameter description	Symbol	Value
Baud rate	B	10 to 100 Gbps
Probe Laser Frequency	ν_0	193.55 THz
Detuning between probe and pump laser sources	$\Delta\nu$	50 GHz
Sampling frequency for propagation phase	f_{prop}	$B \times 80$
Arbitrary Waveform Generator bandwidth	B_{AWG}	$3 \times B$
Losses in a single loop round-trip	l_s	26 dB
Noise figure in OSNR degradation model	NF	5 dB
Bandwidth for OSNR evaluation	$\Delta\nu_{bw}$	$1.2 \times B$
Photodiode bandwidth	B_{PD}	$2 \times B$
Photodiode Conversion Gain	R_{PD}	24 V W^{-1}
Oscilloscope sampling frequency	f_{osc}	$B \times 8$
Oscilloscope vertical full scale	V_{max}	160 mV
Oscilloscope vertical resolution	n_{vert}	8 bits
Oscilloscope bandwidth	B_{osc}	$1.6 \times B$
Number of loops	n_L	0 to 9
Fiber span length	L_s	50 km
Fiber dispersion	D	18 ps nm^{-1} km^{-1}
Group velocity dispersion coefficient	β_2	−0.022 ps^2 m^{-1}
Third-order dispersion coefficient	β_3	0.1 ps^3 km^{-1}
Effective mode area	A_{eff}	80×10^{-12} m^2
Kerr coefficient	n_2	2.7×10^{-20} m^2 W^{-1}
Fiber Attenuation constant	α_{dB}	0.2 dB km^{-1}
Split-Step Fourier Method propagation step	h_s	138.8 m
Thermal noise contribution	σ_T^2	0.65 mV^2
Shot noise contribution	σ_S^2	0.05 mV
Delay lines losses per unit length	α_s	2 dB cm^{-1}

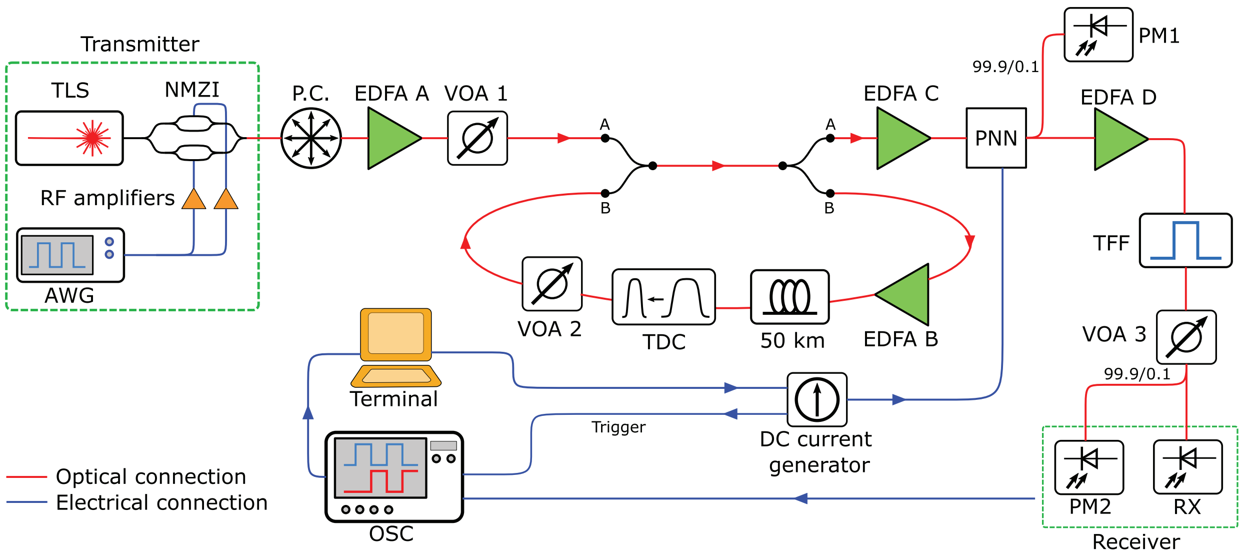

FIGURE 13 | Experimental setup. TLS: Tunable Laser Source; NMZI: Nested Mach-Zehnder Interferometer; AWG: Arbitrary Waveform Generator; RF: Radio Frequency; P.C.: Polarization Controller; EDFA: Erbium-Doped Fiber Amplifier; VOA: Variable Optical Attenuator; TDC: Tunable Dispersion Compensator; PNN: Photonic Neural Network; TFF: Tunable Frequency Filter; RX: Fast Photodiode; PM: Power Monitor; OSC: Oscilloscope.