Corrections to "Multilayer Perception Model Versus Charge Comparison Method for Neutron/Gamma Discrimination in Plastic Scintillator According to Sampling Frequency and Energy Radiation"

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THE code used to prepare the dataset in the above article [1] contained a minor error. Different values for the standard deviation of the created Gaussian window were employed to clean the neutron and gamma-ray signals from pile-up events, as described in [2]. The process outlined in the above article [1] was repeated, and the dataset was prepared using a Gaussian standard deviation of 0.1. Consequently, Tables II–IV and Figs. 2, 7, and 8 should be as follows. The corrected versions are presented in the right column.

TABLE II

class	precision	recall	f1-score
gamma-ray	98%	98%	98%
neutron	97%	97%	97%

TABLE III

energy (keV)	Q_{tot} (a.u.)	percentage
[100, 250]	[0.06, 0.22]	38%
[250, 500]	[0.22, 0.49]	27%
[500, 750]	[0.49, 0.75]	15%
[750, 1200]	[0.75, 1.3]	20%

TABLE IV

		FPR = 2%	
f_s	accuracy	TPR	TPR for TTT_{ratio}
250 MHz	98%	97%	94%
125 MHz	97%	94%	90%

REFERENCES

[1] A. Hachem, Y. Moline, G. Corre, J. Gauthier, and F. Carrel, "Multilayer perceptron model versus charge comparison method for neutron/gamma discrimination in plastic scintillator according to sampling frequency and energy radiation," *IEEE Trans. Nucl. Sci.*, vol. 70, no. 9, pp. 2212–2217, Sep. 2023.

[2] A. Hachem et al., "Labeling strategy to improve neutron/gamma discrimination with organic scintillator," *Nucl. Eng. Technol.*, vol. 55, no. 11, pp. 4057–4065, Nov. 2023.

TABLE II

class	precision	recall	f1-score
gamma-ray	98%	98%	98%
neutron	96%	96%	96%

TABLE III

energy (keV)	Q_{tot} (a.u.)	percentage
[100, 250]	[0.06, 0.22]	40%
[250, 500]	[0.22, 0.49]	26%
[500, 750]	[0.49, 0.75]	14%
[750, 1200]	[0.75, 1.3]	20%

TABLE IV

		FPR = 2%	
f_s	accuracy	TPR	TPR for TTT_{ratio}
250 MHz	97%	96%	91%
125 MHz	96%	94%	90%

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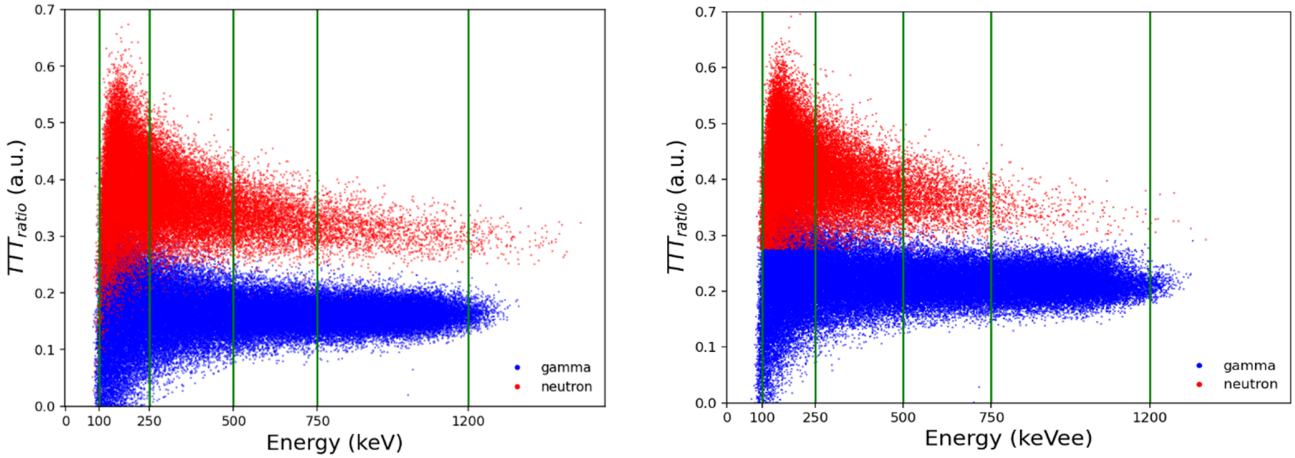
TTT_{ratio} (a.u.)
Energy (keV)
Energy (keVee)
gamma
neutron
0 100 250 500 750 1200

Fig. 2

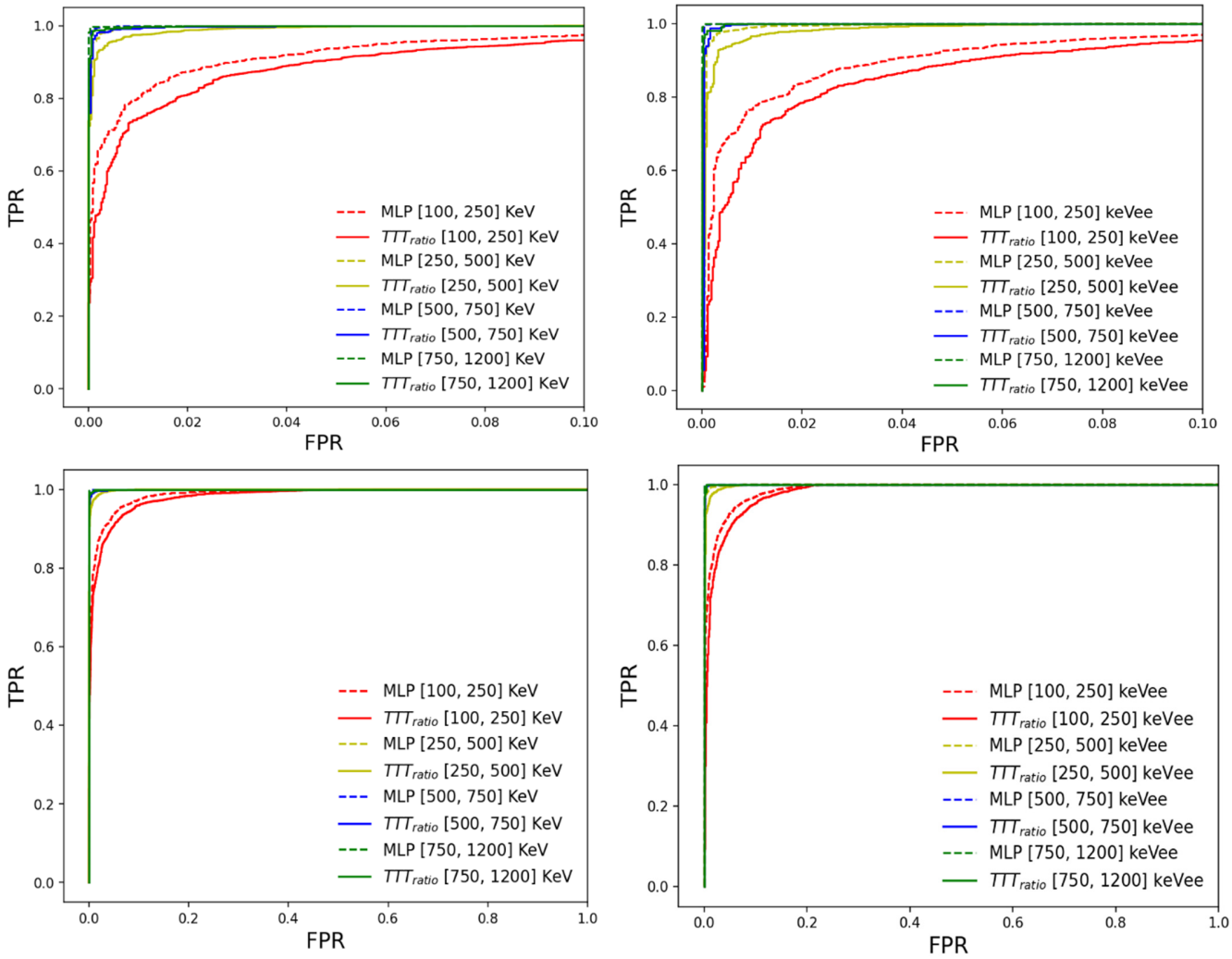
TPR
FPR
MLP [100, 250] KeV
TTT_{ratio} [100, 250] KeV
MLP [250, 500] KeV
TTT_{ratio} [250, 500] KeV
MLP [500, 750] KeV
TTT_{ratio} [500, 750] KeV
MLP [750, 1200] KeV
TTT_{ratio} [750, 1200] KeV
MLP [100, 250] keVee
TTT_{ratio} [100, 250] keVee
MLP [250, 500] keVee
TTT_{ratio} [250, 500] keVee
MLP [500, 750] keVee
TTT_{ratio} [500, 750] keVee
MLP [750, 1200] keVee
TTT_{ratio} [750, 1200] keVee

Fig. 7

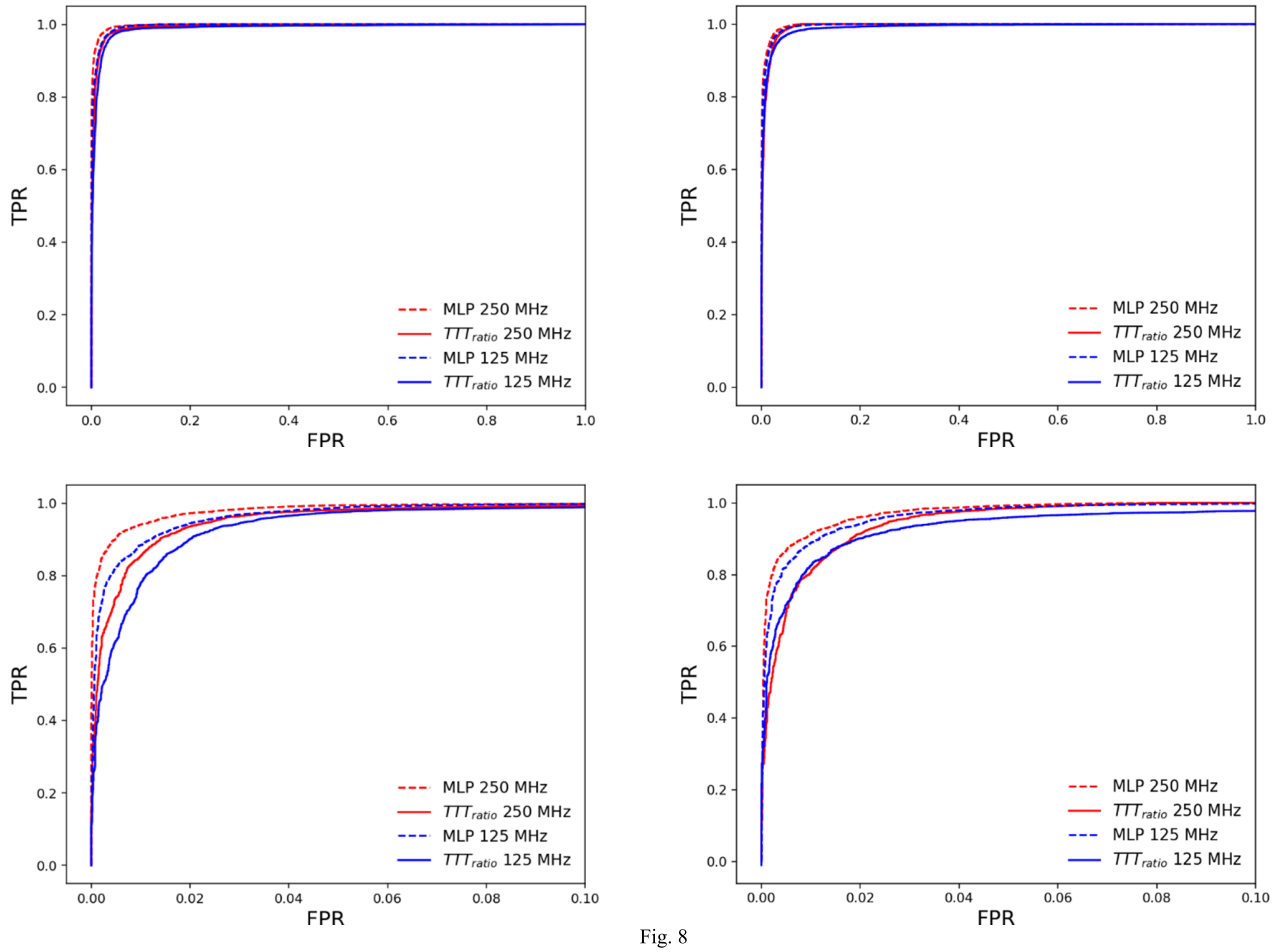
TPR
FPR
MLP 250 MHz
TTT_{ratio} 250 MHz
MLP 125 MHz
TTT_{ratio} 125 MHz

Fig. 8