

# Corrections

## Corrections to “Bit-Interleaved Coded Modulation in the Wideband Regime”

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In [1], the wideband regime of bit-interleaved coded modulation (BICM) in Gaussian channels was studied. The expressions derived therein characterize the suboptimality of BICM in the wideband regime. While the analysis and main results of [1] are fully valid, the following corrections apply.

- 1) Before (11), Theorem 12 of [2] is cited. The correct citation is [3, Th. 6].
- 2) In Appendix C, the exponents of the form  $2 + \alpha$  should read  $4 + \alpha$ .
- 3) *Corollary 4* should read *Corollary 3*.

### REFERENCES

- [1] A. Martinez, A. Guillén i Fàbregas, and G. Caire, “Bit-interleaved coded modulation in the wideband regime,” *IEEE Trans. Inf. Theory*, vol. 54, no. 12, pp. 5447–5455, Dec. 2008.
- [2] S. Verdú, “Spectral efficiency in the wideband regime,” *IEEE Trans. Inf. Theory*, vol. 48, no. 6, pp. 1319–1343, June 2002.
- [3] V. V. Prelov and S. Verdú, “Second-order asymptotics of mutual information,” *IEEE Trans. Inf. Theory*, vol. 50, no. 8, pp. 1567–1580, Aug. 2004.

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## Correction to “Sharp $p$ -Divisibility of Weights in Abelian Codes Over $\mathbb{Z}/p^d\mathbb{Z}$ ”

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**Abstract**—This corrects a proposition and its proof in the paper “Sharp  $p$ -Divisibility of Weights in Abelian Codes over  $\mathbb{Z}/p^d\mathbb{Z}$ ” by Daniel J. Katz (2008). This proposition was used to prove further results in the paper. The rest of the paper (including the main results and all other claims, and their proofs) stands as written, for it is not at all sensitive to the change.

**Index Terms**—Abelian codes, codes over rings, cyclic codes, McEliece’s theorem, quaternary codes.

Proposition 12 of [1] describes a multivariable polynomial  $w(\mathbf{X})$  and asserts that its coefficients are “ $p$ -adically integral elements of  $\mathbb{Q}$ .” It should have said that they are  $p$ -adically integral elements of  $\mathbb{Q}_p$ , i.e., elements of  $\mathbb{Z}_p$ . The portion of the demonstration that is given in the second paragraph before Lemma 10 should be amended so as to replace each instance of  $\mathbb{Q}$  with  $\mathbb{Q}_p$  (including replacing each instance of  $\mathbb{Q}(\zeta)$  with  $\mathbb{Q}_p(\zeta)$ ). In accordance with these changes, the opening sentence of Section III and the second sentence of Section III-A should be amended to speak of a polynomial over  $\mathbb{Q}_p$  or over  $\mathbb{Z}_p$  rather than one over  $\mathbb{Q}$ . No other results of the paper are influenced by this distinction, as none of our proofs ever demand rationality of the coefficients.

### REFERENCES

- [1] D. J. Katz, “Sharp  $p$ -divisibility of weights in Abelian codes over  $\mathbb{Z}/p^d\mathbb{Z}$ ,” *IEEE Trans. Inf. Theory*, vol. 54, no. 12, pp. 5354–5380, 2008.

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