

REFERENCES

- [1] ITU-R, “IMT vision framework and overall objectives of the future development of IMT for 2020 and beyond,” *Tech. Rep.*, 2015.
- [2] Z. Li and B. V. K. V. Kumar, “A class of good quasi-cyclic low-density parity check codes based on progressive edge growth graph,” in *Conference Record of the Thirty-Eighth Asilomar Conference on Signals, Systems and Computers, 2004.*, Nov 2004.
- [3] U. Abdu-Aguye, M. A. Ambroze, and M. Tomlinson, “Improved minimum weight, girth, and ACE distributions in ensembles of short block length irregular LDPC codes constructed using PEG and cyclic PEG (CPEG) algorithms,” in *2016 9th International Symposium on Turbo Codes and Iterative Information Processing (ISTC)*, Sep. 2016, pp. 186–190.
- [4] T. Chen, K. Vakili, D. Divsalar, and R. D. Wesel, “Protograph-based raptor-like LDPC codes,” *IEEE Transactions on Communications*, vol. 63, no. 5, pp. 1522–1532, May 2015.
- [5] I. Andriyanova and E. Soljanin, “Optimized IR-HARQ schemes based on punctured LDPC codes over the BEC,” *IEEE Transactions on Information Theory*, vol. 58, no. 10, pp. 6433–6445, Oct 2012.
- [6] T. Richardson and S. Kudekar, “Design of low-density parity check codes for 5G new radio,” *IEEE Communications Magazine*, vol. 56, no. 3, pp. 28–34, MARCH 2018.
- [7] T. M. Cover and J. A. Thomas, *Elements of Information Theory*, 2nd ed. Wiley, 2006.
- [8] Y. Julian, R. P. Astuti, and K. Anwar, “EXIT analysis for decoding behaviour and performances of 5G NR QC-LDPC codes,” in *2018 21st International Symposium on Wireless Personal Multimedia Communications (WPMC)*, Nov 2018, pp. 437–442.
- [9] J. Hagenauer, “The EXIT chart - introduction to extrinsic information transfer in iterative processing,” in *2004 12th European Signal Processing Conference*, Sep. 2004, pp. 1541–1548.

- [10] 3GPP, “New radio; multiplexing and channel coding,” *Tech. Rep.*, 2017.
- [11] —, “Physical channels and modulation,” *Tech. Rep.*, 2017.
- [12] J. Kim, Y. H. Yun, C. Kim, and J. H. Cho, “A further PAPR reduction for $\pi/2$ -BPSK in 5G new radio,” in *2018 IEEE 88th Vehicular Technology Conference (VTC-Fall)*, Aug 2018, pp. 1–5.
- [13] K. Anwar and T. Matsumoto, “Very simple BICM-ID using repetition code and extended mapping with doped accumulator,” *Wireless Personal Communications*, Springer, vol. 67, no. 3, pp. 573–584, December 2012.
- [14] R.G.Gallager, “Low density parity check codes,” *Cambridge, MA:MIT Press*, 1963.
- [15] ETSI, “Digital video broadcasting (DVB); second generation framing structure, channel coding and modulation systems for broadcasting, interactive services, news gathering and other broadband satellite applications (DVB-S2),” *Tech. Rep.*, 2009.
- [16] “IEEE standard for information technology– local and metropolitan area networks– specific requirements– part 11: Wireless LAN medium access control (MAC) and physical layer (PHY) specifications amendment 5: Enhancements for higher throughput,” *IEEE Std 802.11n-2009*, pp. 1–565, 2009.
- [17] “IEEE standard for information technology–telecommunications and information exchange between systems—local and metropolitan area networks–specific requirements–part 11: Wireless LAN medium access control (MAC) and physical layer (PHY) specifications–amendment 4: Enhancements for very high throughput for operation in bands below 6 ghz.” *IEEE Std 802.11ac(TM)-2013*, pp. 1–425, 2013.
- [18] T. K. Moon, *Error Correction Coding, Mathematical Methods and Algorithms*. Wiley, 2005.
- [19] D. K. Kythe and P. K. Kythe, *Algebraic and Stochastic Coding Theory*. CRC Press, 2012.
- [20] Y. Wang, J. S. Yedidia, and S. C. Draper, “Construction of high-girth QC-LDPC codes,” in *2008 5th International Symposium on Turbo Codes and Related Topics*, Sep. 2008, pp. 180–185.

- [21] A. Nakamura and M. Itami, "A study on LLR calculation scheme under mobile reception of OFDM," in *2018 IEEE International Conference on Consumer Electronics (ICCE)*, Jan 2018, pp. 1–2.
- [22] S. ten Brink, "Convergence behavior of iteratively decoded parallel concatenated codes," *IEEE Trans. Commun.*, vol. 49, pp. 1727–1737, Oct. 2001.
- [23] A. Irawan, K. Anwar, and T. Matsumoto, "Combining-after-decoding Turbo hybrid ARQ by utilizing doped-accumulator," *IEEE Communications Letters*, vol. 17, no. 6, pp. 1212–1215, June 2013.
- [24] K. R. Narayanan and G. L. Stuber, "A novel ARQ technique using the turbo coding principle," *IEEE Communications Letters*, vol. 1, no. 2, pp. 49–51, March 1997.
- [25] H. Harada and R. Prasad, *Simulation and software radio for mobile communication*. Artech House, 2002.
- [26] R. Smarandache and P. O. Vontobel, "Quasi-cyclic LDPC codes: Influence of proto- and Tanner-graph structure on minimum Hamming distance upper bounds," *IEEE Transactions on Information Theory*, vol. 58, no. 2, pp. 585–607, Feb. 2012.