

## Liste des Publications

- [1] B. Audit, C. Thermes, C. Vaillant, Y. d'Aubenton Carafa, J.-F. Muzy & A. Arneodo. Long-range correlations in genomic DNA : a signature of the nucleosomal structure. *Phys. Rev. Lett.* **86**, 2471–2474 (2001).
- [2] B. Audit, C. Vaillant, A. Arneodo, Y. d'Aubenton Carafa & C. Thermes. Long-range correlations between DNA bending sites : relation to the structure and dynamics of nucleosomes. *J. Mol. Biol.* **316**, 903–918 (2002).
- [3] A. Arneodo, B. Audit, N. Decoster, J.-F. Muzy & C. Vaillant. Wavelet based multifractal formalism : Application to DNA sequences, satellite images of the cloud structure and stock market data, in *The Science of Disasters : Climate Disruptions, Heart Attacks, and Market Crashes*, édité par A. Bunde, J. Kropp & H. J. Schellnhuber (Springer Verlag, Berlin, 2002), p. 26–102.
- [4] A. Arneodo, B. Audit, C. Vaillant, Y. d'Aubenton-Carafa & C. Thermes. Extracting structural and dynamical informations from wavelet-based analysis of DNA sequences. in *GROUP 24 : Physical and Mathematical Aspects of Symmetries*, édité par J.-P. Gazeau, R. Kerner, J.-P. Antoine, S. Métens & J.-Y. Thibon, number 173 in Inst. Phys. Conf. Ser. (IOPP Publishing, Bristol, 2003), p. 905–913.
- [5] A. Arneodo, C. Vaillant, B. Audit, Y. d'Aubenton-Carafa & C. Thermes. La transformation en ondelettes continue : un microscope mathématique adapté à l'étude des propriétés d'invariance d'échelle et de corrélations à longue portée des séquences d'ADN. in *19<sup>th</sup> GRETSI Symposium on Signal and Image Processing*, volume III (, Paris, 2003), p. 1–10.
- [6] C. Vaillant, B. Audit, C. Thermes & A. Arneodo. Influence of the sequence on the elastic properties of long DNA chains. *Phys. Rev. E* **67**, 032901 (2003).
- [7] B. Audit, C. Vaillant, A. Arneodo, Y. d'Aubenton-Carafa & C. Thermes. Wavelet Analysis of DNA Bending Profiles reveals Structural Constraints on the Evolution of Genomic Sequences. *J. Biol. Phys.* **30**, 33–81 (2004).
- [8] C. Vaillant, B. Audit & A. Arneodo. Thermodynamics of DNA loops with long-range correlated structural disorder. *Phys. Rev. Lett.* **95**, 068101 (2005).
- [9] C. Vaillant, B. Audit, C. Thermes & A. Arneodo. Formation and positioning of nucleosomes : effect of sequence-dependent long-range correlated structural disorder. *Eur. Phys. J. E* **19**, 263–277 (2006).
- [10] M. Jacob, T. Blu, C. Vaillant, J. H. Maddocks & M. Unser. 3-d shape estimation of dna molecules from stereo cryo-electron micro-graphs using a projection-steerable snake. *IEEE Trans Image Process* **15**, 214–227 (2006).
- [11] A. Amzallag, C. Vaillant, M. Jacob, M. Unser, J. Bednar, J. D. Kahn, J. Dubochet, A. Stasiak & J. H. Maddocks. 3d reconstruction and comparison of shapes of dna minicircles observed by cryo-electron microscopy. *Nucleic Acids Res* **34**, e125 (2006).
- [12] A. Arneodo, Y. d'Aubenton-Carafa, B. Audit, E.-B. Brodie of Brodie, S. Nicolay, P. St-Jean, C. Thermes, M. Touchon & C. Vaillant. DNA in chromatin : from genome-wide sequence analysis to the modeling of replication in mammals. *Advances in Chemical Physics* **135**, 203–252 (2007).

- [13] C. Vaillant, B. Audit & A. Arneodo. Experiments confirm the influence of genome long-range correlations on nucleosome positioning. *Phys. Rev. Lett.* **99**, 218103 (2007).
- [14] V. Miele, C. Vaillant, Y. d'Aubenton-Carafa, C. Thermes & T. Grange. DNA physical properties determine nucleosome occupancy from yeast to fly. *Nucleic Acids Res.* **36**, 3746–3756 (2008).
- [15] P. St-Jean, C. Vaillant, B. Audit & A. Arneodo. Spontaneous emergence of sequence-dependent rosettelike folding of chromatin fiber. *Phys. Rev. E* **77**, 061923 (2008).
- [16] A. Arneodo, B. Audit, C. Faivre-Moskalenko, J. Moukhtar, C. Vaillant, F. Argoul, Y. d'Aubenton-Carafa & C. Thermes. From DNA sequence to chromatin organization : the fundamental role of genomic long-range correlations. in *Mémoire de la Classe des Sciences, Collection en -8<sup>o</sup>, 3<sup>e</sup> série, Tome XXVIII, n<sup>o</sup> 2049*. Académie Royale de Belgique, Bruxelles (2008).
- [17] J. Moukhtar, C. Vaillant, B. Audit & A. Arneodo. Generalized wormlike chain model for long-range correlated heteropolymers. *Europhys. Lett.* **86**, 48001 (2009).
- [18] B. Audit, L. Zaghoul, C. Vaillant, G. Chevereau, Y. d'Aubenton Carafa, C. Thermes & A. Arneodo. Open chromatin encoded in DNA sequence is the signature of 'master' replication origins in human cells. *Nucleic Acids Res* **37**, 6064–6075 (2009).
- [19] G. Chevereau, L. Palmeira, C. Thermes, A. Arneodo & C. Vaillant. Thermodynamics of intragenic nucleosome ordering. *Phys. Rev. Lett.* **103**, 188103 (2009).
- [20] P. Milani, G. Chevereau, C. Vaillant, B. Audit, Z. Haftek-Terreau, M. Marilley, P. Bouvet, F. Argoul & A. Arneodo. Nucleosome positioning by genomic excluding-energy barriers. *Proc. Natl. Acad. Sci. U S A* **106**, 22257–22262 (2009).
- [21] J. Moukhtar, C. Faivre-Moskalenko, P. Milani, B. Audit, C. Vaillant, E. Fontaine, F. Mongelard, G. Lavorel, P. St-Jean, P. Bouvet, F. Argoul & A. Arneodo. Effect of genomic long-range correlations on DNA persistence length : from theory to single molecule experiments. *J. Phys. Chem. B* **114**, 5125–5143 (2010).
- [22] C. Vaillant, L. Palmeira, G. Chevereau, B. Audit, Y. d'Aubenton Carafa, C. Thermes & A. Arneodo. A novel strategy of transcription regulation by intragenic nucleosome ordering. *Genome Res.* **20**, 59–67 (2010).
- [23] J. Moukhtar, C. Vaillant, B. Audit & A. Arneodo. Revisiting polymer statistical physics to account for the presence of long-range-correlated structural disorder in 2d dna chains. *Eur. Phys. J. E : Soft Matter* **34**, 119 (2011).
- [24] A. Arneodo, C. Vaillant, B. Audit, F. Argoul, C. Thermes & Y. d'Aubenton Carafa. Multi-scale coding of genomic information : From dna sequence to genome structure and function. *Phys. Rep.* **498**, 45–188 (2011).
- [25] P. Lesbats, Y. Botbol, G. Chevereau, C. Vaillant, C. Calmels, A. Arneodo, M.-L. Andreola, M. Lavigne & V. Parissi. Functional coupling between hiv-1 integrase and the swi/snf chromatin remodeling complex for efficient in vitro integration into stable nucleosomes. *PLoS Pathog* **7**, e1001280 (2011).
- [26] G. Chevereau, A. Arneodo & C. Vaillant. Influence of the genomic sequence on the primary structure of chromatin. *Frontiers in Life Science* **5**, 29–68 (2011).

- [27] P. Milani, M. Marilley, A. Sanchez-Sevilla, J. Imbert, C. Vaillant, F. Argoul, J.-M. Egly, J. Rocca-Serra & A. Arneodo. Mechanics of the *il2ra* gene activation revealed by modeling and atomic force microscopy. *PLoS One* **6**, e18811 (2011).
- [28] A. A. Travers, C. Vaillant, A. Arneodo & G. Muskhelishvili. Dna structure, nucleosome placement and chromatin remodelling : a perspective. *Biochem Soc Trans* **40**, 335–340 (2012).
- [29] A. Baker, B. Audit, C.-L. Chen, B. Moindrot, A. Leleu, G. Guilbaud, A. Rappailles, C. Vaillant, A. Goldar, F. Mongelard, Y. d'Aubenton Carafa, O. Hyrien, C. Thermes & A. Arneodo. Replication fork polarity gradients revealed by megabase-sized u-shaped replication timing domains in human cell lines. *PLoS Comput Biol* **8**, e1002443 (2012).
- [30] L. Lemelle, J. Palierne, E. Chatre, C. Vaillant & C. Place. Curvature reversal of the circular motion of swimming bacteria probes for slip at solid/liquid interfaces. *Soft Matter* **9**, 9759–9762 (2013).
- [31] C. Vaillant & T. Grange. Dna : a structural "band-pass" filter of genomic sequence. *Phys Life Rev* **10**, 68–9 ; discussion 82–4 (2013).