

# The Influence of the Magnetic Field on the DNA

Ivan Trenchev, Metodi Traykov, Mitko Georgiev  
Faculty of Engineering, South-West University "Neofit Rilski"  
wonther2000@yahoo.com

*Keywords: epigenetic, genetics, magnetic field, DNA*

The influence of the magnetic fields on the DNA can be used for medical purposes (trans-cranial magnetic treatment of cognitive deceases, cell proliferation, control of the cancer cells, etc). In this paper, we will present some properties of the double- helix structure of DNA in 3D. In addition, it will be shown explicit description of some quantities of DNA. This mathematical model could be used in research into the stability of the DNA in a magnetic field. We will demonstrate one of our hypothesis for investigation of this stability. This hypothesis can demonstrate the potential health effects associated with exposure to extremely low frequency or high frequency magnetic fields in the social and professional environments. In our work, we use a mathematical software like Matlab and R language.

## References

- [1] J Nolting, Wolfgang, Ramakanth, Anupuru , Quantum Theory of Magnetism, Springer-Verlag Berlin Heidelberg, USA, 2009
- [2] Alek Aksimentiev, Jeffrey Comer Bionanotechnology Tutorial, University of Illinois at Urbana-Champaign, USA, 2011
- [3] AFerdinando Bersani, Electricity and Magnetism in Biology and Medicine, Springer US, 1999
- [4] James Gumbart, Benot Roux, Christophe Chipot, Protein:ligand Standard Binding Free Energies: A Tutorial for Alchemical and Geometrical Transformations, University of Illinois at Urbana-Champaign, USA, 2011
- [5] Tapash Chakraborty, Charge Migration in DNA, Springer-Verlag Berlin Heidelberg, 2007