

## Monte Carlo (MC) Simulation of Hadrontherapy for Cancer Treatment

Alireza Heidari<sup>1,2,3,4\*</sup>

<sup>1</sup>California South University, 14731 Comet St. Irvine, CA 92604, USA

<sup>2</sup>BioSpectroscopy Core Research Laboratory, California South University, 14731 Comet St. Irvine, CA 92604, USA

<sup>3</sup>Cancer Research Institute (CRI), California South University, 14731 Comet St. Irvine, CA 92604, USA

<sup>4</sup>American International Standards Institute, Irvine, CA 3800, USA

\***Correspondence:** Faculty of Chemistry. Alireza Heidari, California South University, 14731 Comet St. Irvine, CA 92604, USA

**Received Date:** Aug 02, 2022 / **Accepted Date:** Oct 02, 2022 / **Published Date:** Oct 11, 2022

### Abstract

The moved past time/bought spectra show that this TEPC is equipped for imitating the pillar dialing back, showing a move/change towards higher lineal energies as the first (or generally significant) particles slow-down.

### Keywords

Radiotherapy, Cancer, Treatment, Hadrontherapy, Cure, Tumors, Oncology, Particle Therapy.

## Opinion

The moved past time/bought spectra show that this TEPC is equipped for imitating the pillar dialing back, showing a move/change towards higher lineal energies as the first (or generally significant) particles slow-down. More than that, the circulations at various (very much like the genuine article) site sizes for a similar profundity are impacted by optional electrons: more modest site size spectra show a move/change towards higher lineal energies as the site diminishes, while this isn't true for more (away from the principal mass of the body) positions, where the edge of the spectra is practically free of the (very much like the genuine article) site size. Monte Carlo trials (that show up or feel near the genuine article) (sang, moved, acted, and so forth, before individuals) with the FLUKA code show a decent concurrence with the exploratory outcomes got/got in the current paper [1-30].

## Acknowledgement

This study was supported by the [Cancer](#) Research Institute (CRI) Project of Scientific Instrument and Equipment Development, the National Natural Science Foundation of the United States, the International Joint BioSpectroscopy Core Research Laboratory (BCRL) Program supported by the California South University (CSU), and the Key project supported by the American International Standards Institute (AISI), Irvine, California, USA.

## References

1. Heidari A, Brown C. Study of Composition and Morphology of Cadmium Oxide (CdO) [Nanoparticles](#) for Eliminating [Cancer](#) Cells. J Nanomed Res. 2015; 2(5)20:2015.
2. Heidari A, Brown C. Study of Surface Morphological, Phytochemical and Structural Characteristics of Rhodium (III) Oxide (Rh<sub>2</sub>O<sub>3</sub>) Nanoparticles. Int J Pharmacol Phytoche Ethnomed. 2015;1(1):15-19.
3. Heidari A. An Experimental Biospectroscopic Study on Seminal Plasma in Determination of Semen Quality for Evaluation of Male Infertility. Int J Adv Technol. 2016;7: e007.

4. Heidari A. Extraction and Preconcentration of N-Tolyl-Sulfonyl-Phosphoramid-Saeure-Dichlorid as an Anti-Cancer Drug from Plants: A Pharmacognosy Study. *J Pharmacogn Nat Prod.* 2016;2: e103.
5. Heidari A. A Thermodynamic Study on Hydration and Dehydration of DNA and RNA-Amphiphile Complexes. *J Bioeng Biomed Sci.* 2016;S:006.
6. Heidari A. Computational Studies on Molecular Structures and Carbonyl and Ketene Groups' Effects of Singlet and Triplet Energies of Azidoketene  $O=C=CH-NNN$  and Isocyanatoketene  $O=C=CH-N=C=O$ . *J Appl Computat Math.*2016;5:e142.
7. Heidari A. Study of Irradiations to Enhance the Induces the Dissociation of Hydrogen Bonds between Peptide Chains and Transition from Helix Structure to Random Coil Structure Using ATR–FTIR, Raman and  $^1H$ NMR Spectroscopies. *J Biomol Res Ther.* 2016;5:e146.
8. Heidari A. Future Prospects of Point Fluorescence Spectroscopy, Fluorescence Imaging and Fluorescence Endoscopy in Photodynamic Therapy (PDT) for Cancer Cells. *J Bioanal Biomed.* 2016;8: e135.
9. Heidari A. A Bio-Spectroscopic Study of DNA Density and Color Role as Determining Factor for Absorbed Irradiation in Cancer Cells. *Adv Cancer Prev.* 2016;1: e102.
10. Heidari A Manufacturing Process of Solar Cells Using Cadmium Oxide (CdO) and Rhodium (III) Oxide ( $Rh_2O_3$ ) Nanoparticles. *J Biotechnol Biomater.*2016;6: e125.
11. Heidari A. A Novel Experimental and Computational Approach to Photobiosimulation of Telomeric DNA/RNA: A Biospectroscopic and Photobiological Study. *J Res Development* 2016;4:144.
12. Heidari A. Biochemical and Pharmacodynamical Study of Microporous Molecularly Imprinted Polymer Selective for Vancomycin, Teicoplanin, Oritavancin, Telavancin and Dalbavancin Binding. *Biochem Physiol.* 2016;5:e146.
13. Heidari A. Anti-Cancer Effect of UV Irradiation at Presence of Cadmium Oxide (CdO) Nanoparticles on DNA of Cancer Cells: A Photodynamic Therapy Study. *Arch Cancer Res.* 2016;4:1.
14. Heidari A. Biospectroscopic Study on Multi–Component Reactions (MCRs) in Two A–Type and B–Type Conformations of Nucleic Acids to Determine Ligand Binding Modes, Binding Constant and Stability of Nucleic Acids in Cadmium Oxide (CdO) Nanoparticles–Nucleic Acids Complexes as Anti–Cancer Drugs. *Arch Cancer Res.* 2016;4:2.
15. Heidari A. Simulation of Temperature Distribution of DNA/RNA of Human Cancer Cells Using Time–Dependent Bio–Heat Equation and Nd: YAG Lasers. *Arch Cancer Res.* 2016;4:2.
16. Heidari A. Quantitative Structure–Activity Relationship (QSAR) Approximation for Cadmium Oxide (CdO) and Rhodium (III) Oxide ( $Rh_2O_3$ ) Nanoparticles as Anti-Cancer Drugs for the Catalytic Formation of Proviral DNA from Viral RNA Using Multiple Linear and Non-Linear Correlation Approach. *Ann Clin Lab Res.* 2016;4:1.
17. Heidari A. Biomedical Study of Cancer Cells DNA Therapy Using Laser Irradiations at Presence of Intelligent Nanoparticles. *J Biomedical Sci.* 2016;5:2.
18. Heidari A. Measurement the Amount of Vitamin D2 (Ergocalciferol), Vitamin D3 (Cholecalciferol) and Absorbable Calcium ( $Ca^{2+}$ ), Iron (II) ( $Fe^{2+}$ ), Magnesium ( $Mg^{2+}$ ), Phosphate ( $PO_4^{4-}$ ) and Zinc ( $Zn^{2+}$ ) in Apricot Using High–Performance Liquid Chromatography (HPLC) and Spectroscopic Techniques. *J Biom Biostat.* 2016;7:292.
19. Heidari A. Spectroscopy and Quantum Mechanics of the Helium Dimer ( $He_2^{2+}$ ), Neon Dimer ( $Ne_2^{2+}$ ), Argon Dimer ( $Ar_2^{2+}$ ), Krypton Dimer ( $Kr_2^{2+}$ ), Xenon Dimer ( $Xe_2^{2+}$ ), Radon Dimer ( $Rn_2^{2+}$ ) and Ununoctium Dimer ( $Uuo_2^{2+}$ ) Molecular Cations. *Chem Sci J.* 2016;7: e112.
20. Heidari A. Human Toxicity Photodynamic Therapy Studies on DNA/RNA Complexes as a Promising New Sensitizer for the Treatment of Malignant Tumors Using Bio-Spectroscopic Techniques. *J Drug Metab Toxicol.* 2016;7: e129.
21. Heidari A. Novel and Stable Modifications of Intelligent Cadmium Oxide (CdO) Nanoparticles as Anti–Cancer Drug in Formation of Nucleic Acids Complexes for Human Cancer Cells' Treatment. *Biochem Pharmacol (Los Angel)* 2016;5: 207.
22. Heidari A. A Combined Computational and QM/MM Molecular Dynamics Study on Boron Nitride Nanotubes (BNNTs), Amorphous Boron Nitride Nanotubes (a–BNNTs) and Hexagonal Boron Nitride Nanotubes (h–BNNTs) as Hydrogen Storage. *Struct Chem Crystallogr Commun* 2016;2.

23. Heidari A. Pharmaceutical and [Analytical Chemistry](#) Study of Cadmium Oxide (CdO) [Nanoparticles](#) Synthesis Methods and Properties as Anti–Cancer Drug and Its Effect on Human [Cancer](#) Cells. *Pharm Anal Chem Open Access*. 2016;2:113.
24. Heidari A. A Chemotherapeutic and Biospectroscopic [Investigation](#) of the Interaction of Double–Standard DNA/RNA-Binding Molecules with Cadmium Oxide (CdO) and Rhodium (III) Oxide (Rh<sub>2</sub>O<sub>3</sub>) [Nanoparticles](#) as Anti-Cancer [Drugs](#) for [Cancer](#) Cells' Treatment", *Chemo Open Access*. 2016;5: e129.
25. Heidari A. [Pharmacokinetics](#) and Experimental Therapeutic Study of [DNA](#) and Other [Biomolecules](#) Using Lasers: Advantages and Applications. *J Pharmacokinet Exp Ther*. 2016;1:e005.
26. Heidari A. Determination of Ratio and Stability Constant of DNA/RNA in Human [Cancer Cells](#) and Cadmium Oxide (CdO) [Nanoparticles](#) Complexes Using Analytical Electrochemical and Spectroscopic Techniques. *Insights Anal Electrochem* 2016;2:1.
27. Heidari A. Discriminate between Antibacterial and Non–Antibacterial [Drugs](#) Artificial Neutral Networks of a Multilayer Perceptron (MLP) Type Using a Set of Topological Descriptors. *J Heavy Met Toxicity Dis*. 2016;1: 2.
28. Heidari A. Combined Theoretical and Computational Study of the Belousov–Zhabotinsky Chaotic Reaction and Curtius Rearrangement for Synthesis of Mechlorethamine, Cisplatin, Streptozotocin, Cyclophosphamide, Melphalan, Busulphan and BCNU as Anti–Cancer Drugs. *Insights Med Phys*. 2016;1:2.
29. Heidari A. A Translational Biomedical Approach to Structural Arrangement of Amino Acids' Complexes: A Combined Theoretical and Computational Study. *Transl Biomed*. 2016;7:2.
30. Heidari A. Ab Initio and Density Functional Theory (DFT) Studies of Dynamic [NMR](#) Shielding Tensors and Vibrational Frequencies of DNA/RNA and Cadmium Oxide (CdO) [Nanoparticles](#) Complexes in Human [Cancer](#) Cells. *J Nanomedicine Biotherapeutic Discov* 2016;6: e144.

**Citation:** Alireza Heidari. Monte Carlo (MC) Simulation of Hadrontherapy for Cancer Treatment. *Nanomed Nanosci Technol: Open Access* 2022;2(4):1-4.

**Copyright:** © 2022 This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.