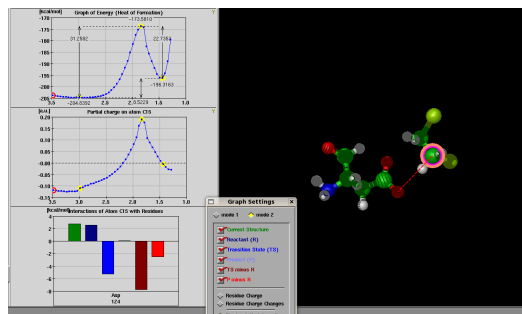


## Quantum Biology



This is to certify that Abraham Loera Muro attended and satisfactorily completed the EMBnet (European Molecular Biology Network) course **Introduction to Quantum Biology**, which took place 12<sup>th</sup> - 13<sup>th</sup>, November 2008, 9:30 to 16:30 at the *Centro Nacional de Biotecnología, Consejo Superior de Investigaciones Científicas*, Madrid, Spain.

This is an introductory course to Quantum Chemistry methods employed in the Life Sciences, oriented to scientists with an interest in molecular modeling, pharma- and cheminformatics, and modeling of chemical reactions in enzymes. The course lasts **16 hours** evenly split in theory and practice, and relies on several major packages for practical training, covering

- A general introduction to basic theory and methods in Quantum Chemistry
  - Visualization
  - Molecular Modeling (QM, MM, MD)
  - Pharmainformatics, QSAR and molecular docking
  - Quantum Mechanics
- A practical project on *in silico* modeling, molecular docking and reaction modeling.

There was considerable emphasis on developing first-hand experience through practical sessions using professional tools like DeepView, Triton, Modeller, MOPAC, NWChem, MPQC, GAMESS-US and WebMO.

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