The Spoken Tutorial project

- Self explanatory - uses simple language
- Audio-video - uses multisensory approach
- Small duration - has better retention
- Learner-centered - learn at your own pace
- Learning by doing - learn and practice simultaneously
- Empowerment - learn a new FOSS

Target Group

- College teachers and students
- Research scholars
- Community at large

Workshops

The Spoken Tutorial Project Team conducts workshops on Avogadro and other FOSS using Spoken Tutorials and gives certificates to those who pass an online test.

For more details, please write to
contact@spoken-tutorial.org

The Spoken Tutorial Project is funded by the National Mission on Education through Information and Communication Technology, Ministry of Human Resource Development, Government of India.

Contact us

Email: contact@spoken-tutorial.org
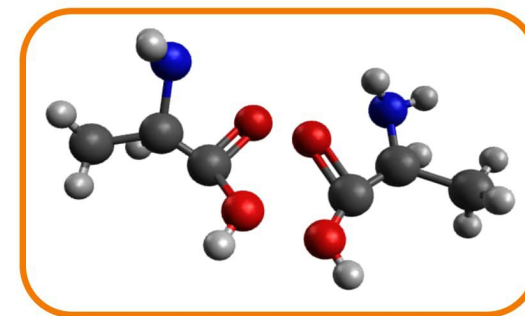**Website:** http://spoken-tutorial.org

IIT Bombay

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Spoken Tutorials

Avogadro
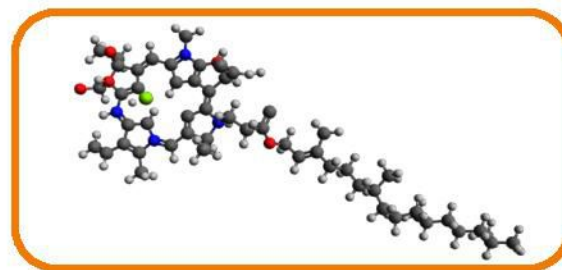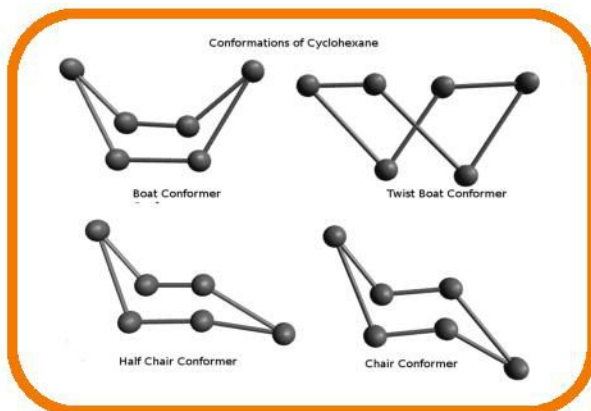
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Introduction

- Avogadro is a three dimensional Molecular builder/editor and visualizer for chemical structures and macromolecules.

- It is free and open source software.

- It runs on Windows, Mac OSX and Linux operating systems.

- For download and installtion visit sourceforge.net/projects/

Avogadro for macromolecules

- 3D interactive molecules of proteins and DNA/RNA can be loaded and modified.

- Supercells can be built using super cell builders.

- Carbon nanotubes of different indices can be built and minimized.

Conformations of Cyclohexane

Boat Conformer   Twist Boat Conformer

Half Chair Conformer   Chair Conformer

Features of Avogadro

- Energy minimisation can be done using Force Fields to obtain stable conformations.

- Two or more structures can be built or loaded on the Panel.

- It has various Display Types.

- It has Fragment Library to load in built structures and macromolecules.

- It has in built Crystal library.

- We can export files to png, jpg, bmp file formats.

- We can create Gaussian input files in Avogadro.

- It offers flexible high quality rendering.
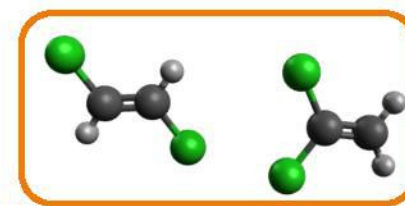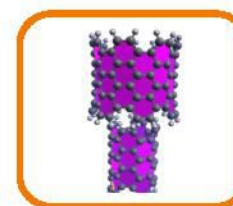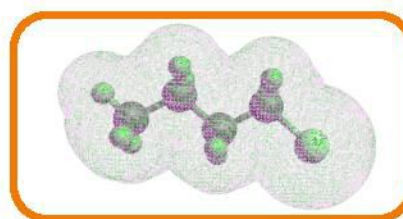
Uses of Avogadro

- We can show hydrogen bonding in various structures.

- It has Force Display Type to show forces acting on the molecules before optimization.

- Shows dipole moments of the molecules.

- Structures can be rotated and manipulated

- Displays bond lengths, dihedral angles, charges and symbols.

- We can change the color and label of an atoms as required.

- R-S configurations and Geometrical isomers can be viewed clearly.

- Shows geometries of coodination compounds like trigonal bipiramidal octahedral and pentagonal bipiramidal.

- Images can be used in presentations, publications and pdfs.

- It can used in class teaching or to give presentations.