

Arab Science Gateway (SGW) is an environment that brings together tools, data and advanced computer applications in a user friendly interface available to the research communities in the Arab region

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TO USE**

**STANDARD  
BASED**

**IMMEDIATE  
AUTHENTICATION**

**CUSTOMIZABLE  
TO ARAB RESEARCH  
COMMUNITIES**

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# SOME OF THE APPLICATIONS AVAILABLE

## COMPUTER SCIENCE AND MATHEMATICS

Sonification



Sonification is the use of non-speech audio to convey information or perceptualise data. Auditory perception has advantages in temporal, amplitude, and frequency resolution that open possibilities as an alternative or complement to visualization techniques.

Octave2



Octave is a high-level interpreted language, primarily intended for numerical computations. It provides capabilities for the numerical solution of linear and nonlinear problems, and for performing other numerical experiments.

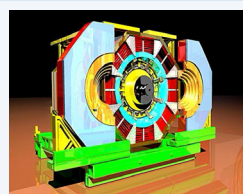
R



R is a language and environment for statistical computing and graphics.

## HIGH-ENERGY PHYSICS

BESIII



The BESIII experiment is to study basic elements made of matter, interaction among elements and matter, basic rules of particles, etc.

## COMPUTATIONAL CHEMISTRY

ABINIT



ABINIT is a package whose main program allows one to find the total energy, charge density and electronic structure of systems made of electrons and nuclei (molecules and periodic solids) within Density Functional Theory (DFT), using pseudopotentials and a planewave or wavelet basis. ABINIT also includes options to optimize the geometry according to the DFT forces and stresses, or to perform molecular dynamics simulations using these forces and many more properties. It is based on a computational technique that requires very large computational power.

## LIFE SCIENCES

GROMACS



GROMACS is a versatile package to perform molecular dynamics, i.e simulate the Newtonian equations of motion for systems with hundreds to millions of particles.

## OTHERS

ASTRA



The ASTRA project aims at reconstructing the sound or timbre of ancient instruments (not existing anymore) using archaeological data as fragments from excavations, written descriptions, pictures, etc. ([www.astraproject.org](http://www.astraproject.org))