

Research Projects



- General Sciences
- Physical Sciences
- Energy Sciences
- Biosciences

*Ali Belkacem - Chemical Sciences
MRC workshop: March 26, 2002*

From Survey and Web-Site*

* Note: This slide was only read at the workshop and not shown as is

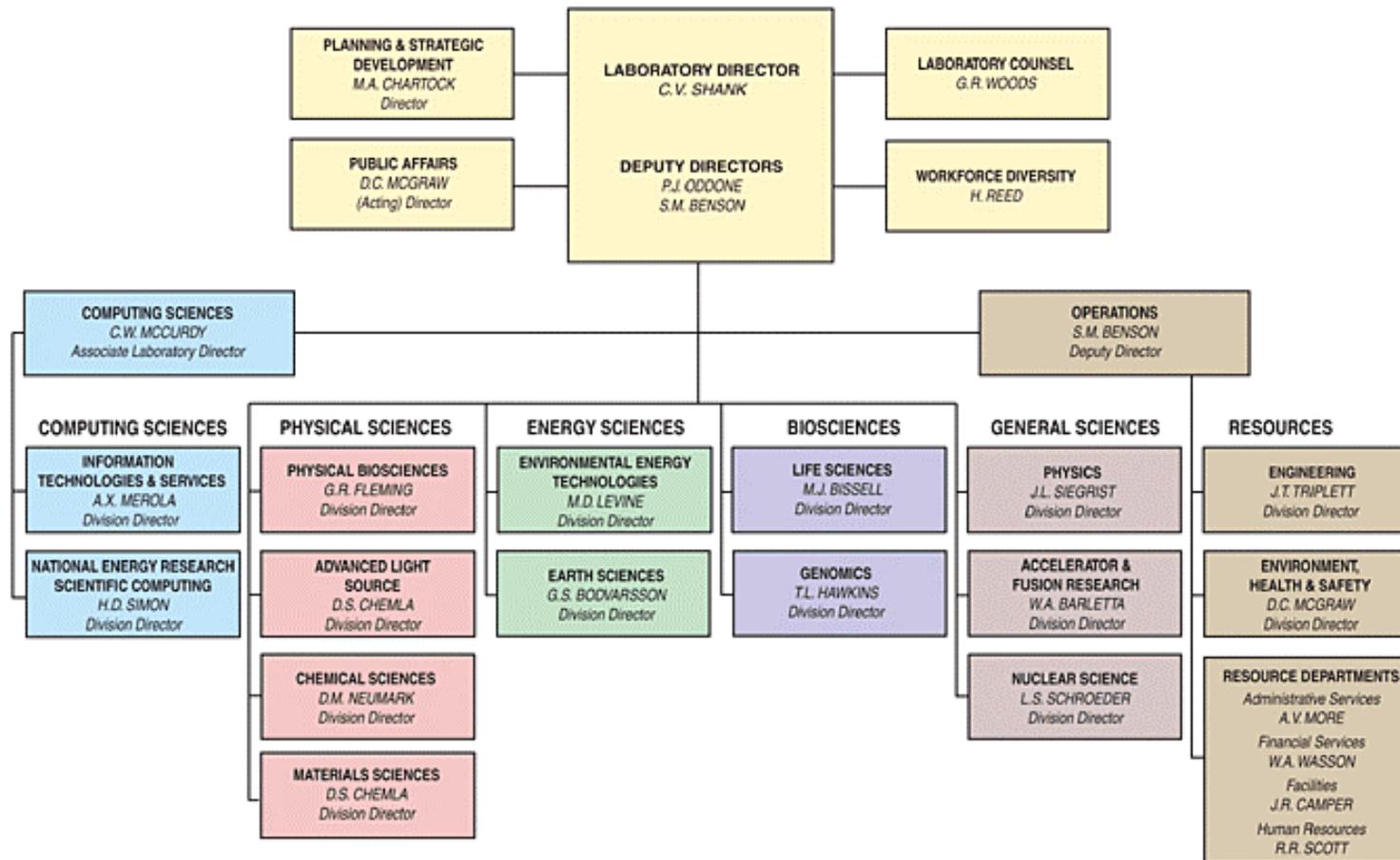


Extract from **Mike Eisen** web-site: Life Sciences and Genomics

“All projects have extensive data analysis components and require **tight integration of computational and experimental methods**”

This is repeated in one way or another across the scientific projects in the survey and also across a large number research programs at the Laboratory – This shows how important MRC is to the Lab research programs

LBL Org chart



01/10/02

General Sciences



Relativistic Heavy collisions - Search for the Quark-Gluon plasma
At the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National
Laboratory.

Data analysis of STAR experiment, Simulation of detector response.

- Detection of Neutrino Oscillations (does the neutrino have a mass?).
Data analysis

General Sciences



Software development for ATLAS HEP experiment at CERN,
- Simulation and data analysis.

Super Nova Factory – near-real time processing of very large sets of data images. Current night's image are compared with archival images. Automated detection and follow-up of Type Ia supernovae using large data sets from night sky searches

Modeling of laser-plasma interactions, Intense laser-plasma interaction Physics, Advanced accelerators (laser based) and novel radiation sources.

Physical Sciences



Development and implementation of advanced electronic structure theories for the ground and excited states of molecules and radicals.

Structure derivation from electron microscope facility images, 3-D reconstruction from diffraction patterns.

Develop theory to interpret experimental data obtained at the ALS. Involves modeling of the electron scattering, diffraction and holography through solid materials.

Energy Sciences



Heat and mass transfers in buildings.

Airflow and dynamic pollutant transport in buildings and large indoor spaces. Mathematical and statistical modeling of human exposure to chemicals.

Similarly for outdoor pollution and global climate. Atmospheric aerosols, atmospheric chemistry and process that impact global climate.

Biosciences



- Study how genome sequences specify form and function. Computational and experimental.
- Develop high density scintillators for nuclear medical imaging with high light output and sub-ns speed. Simulate carrier transport and radiative recombination.