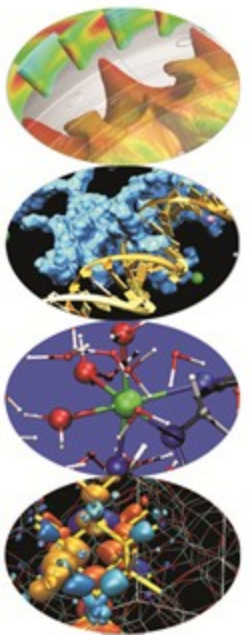
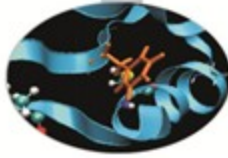




CUDA Tutorial



Ex 1



Analyze the device properties of each device on the node by using `cudaGetDeviceProperties` function

Check the compute capability, global memory, shared memory, constant memory, num threads per block, num registers per block.



Ex 2

Copy a buffer from host to device and measure the transfer time and bandwidth

```
cudaEvent_t start, end
```

```
cudaEventCreate(&start)
```

```
cudaEventCreate(&end)
```

```
CudaEventRecord(start,0)
```

```
Copies...
```

```
cudaEventRecord(end,0)
```

```
cudaEventSynchronize(end)
```

```
cudaEventElapsedTime(&eventTime, start,end)
```

Try more copies.

Ex 3



Create an array of N integer elements on the host

Copy the array from the host to the device

Increase N until the device memory is not enough and check the error message.



Ex 4

Create 3 arrays, a b, c, of N elements on the host.

Set a,b to some values

Copy to the device

Sum $c[i] = a[i] + b[i]$. Check the correct behaviour!!

Copy the c array back

Measure the bandwidth, print c and check if the values are correct

(Be careful if N is not multiple of thread block size)