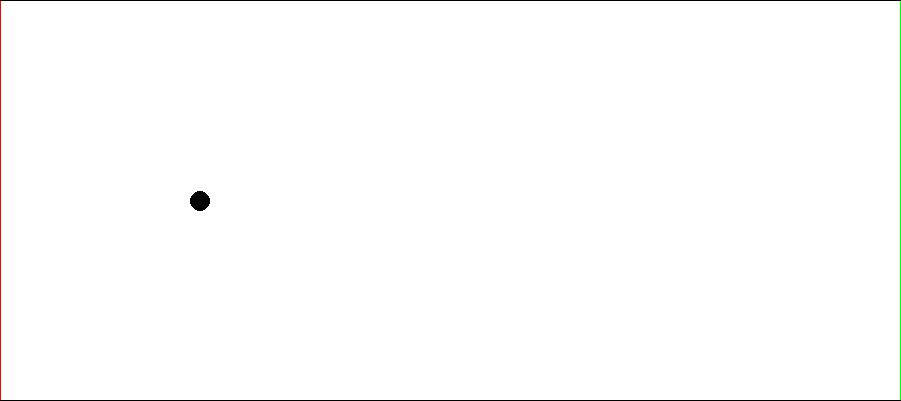
**Karman Vortex street**

**Geometry:**

The model used is rectangular 900x400 pixels in size with a cylinder at the centre line represented by circle of radius 10 pixels. The distance between the circle and the wall is 20 times the diameter of the circle.

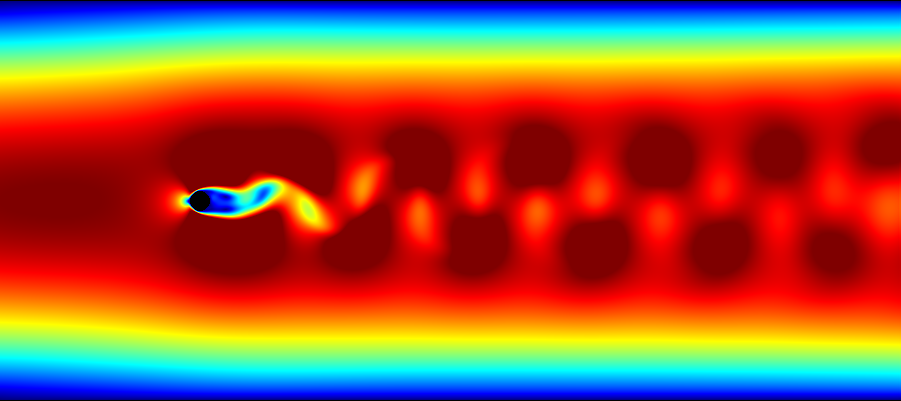


**Setup:**

* The Smagorinsky turbulence model is turned off.
* Reynolds number is taken to be 1000.

**Result:**

* The following result was observed.



* The literature suggests a standard result of Strouhal number 0.235 at 1000 Reynold’s number.
* To determine the Strouhal number of the simulation, frequency is measured by observing the time taken for 2 vortices to pass through a fixed line perpendicular to the flow. The square root to area of the circle is taken as the characteristic length.
* The following Matlab code has been used:

Re=1000;

nodes\_x=900;

nodes\_y=400;

res=1.4\*10^(-4);

length=nodes\_x\*res;

width=nodes\_y\*res;

char=sqrt(3.14159\*100\*res^2);

visc=8.9\*10^-7;

vel=Re\*visc/width\*3/2;

freq=2/(4.686382\*10^(-4)\*1900);

St=freq\*(char)/vel

* Results from this code show a Strouhal number of 0.2338 at 1000 Reynold’s.