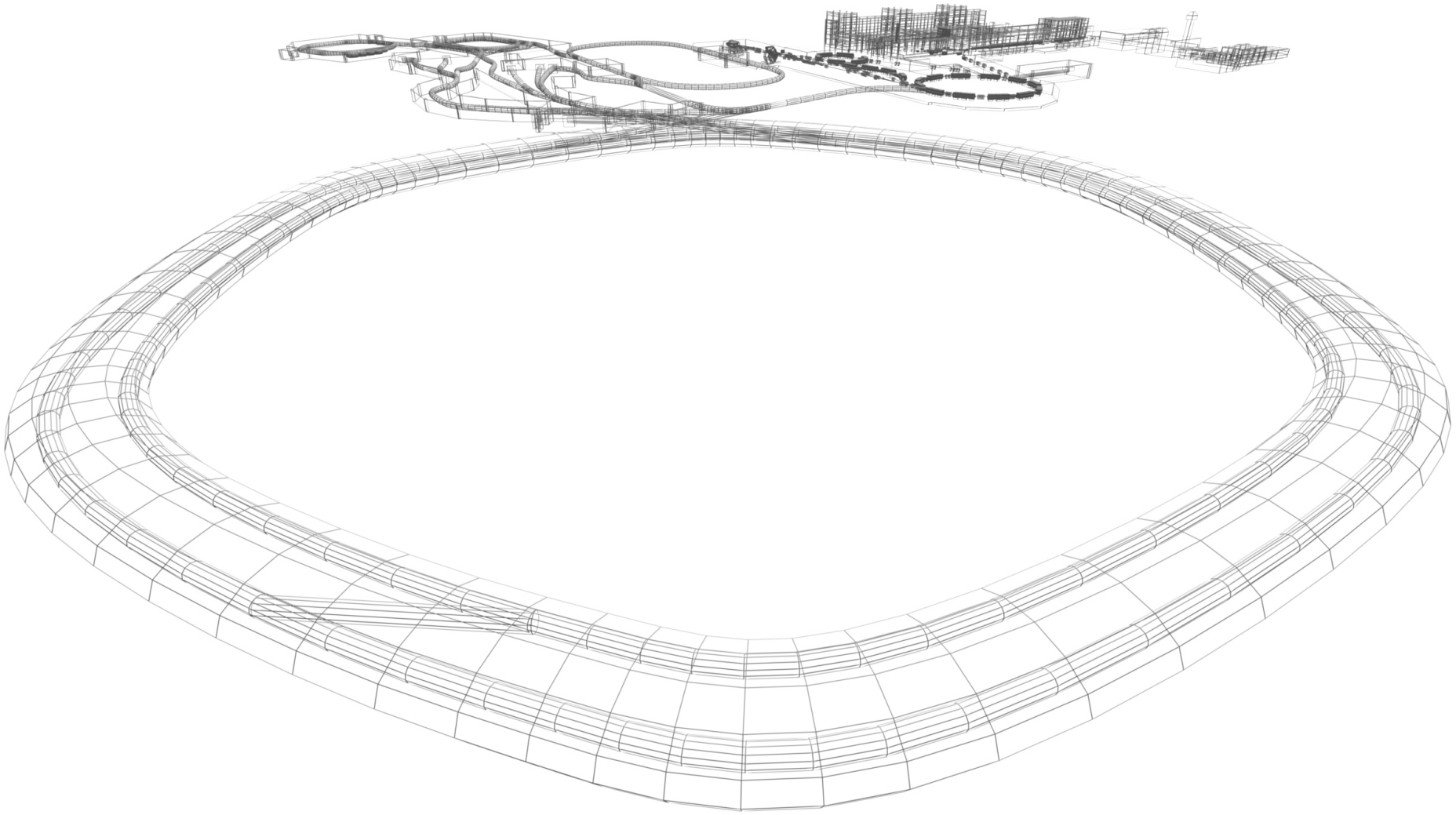
GSI Helmholtzzentrum für Schwerionenforschung GmbH



# Solutions Exercise I

- Print the value of Pi
  - Hint: mathematical functions are in the namespace TMath::

```
root [3] TMath::P

Permute
Pi
PiOver2
PiOver4
Poisson
PoissonI
Power
Prob
root [3] TMath::Pi()
(Double_t) 3.14159
```

# Solutions Exercise I

- Calculate the volume and the surface of a can with radius r=5cm and the height h=10cm
  - Volume: $\pi * r^2 * h$
  - Surface: $(\pi * r^2) * 2 + 2 * \pi * r * h$

# Solutions Exercise I

- Calculate the volume and the surface of a can with radius r=5cm and the height h=10cm
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```
root [5] TMath::Pi()*5*5*10
(double) 785.398
root [6] (TMath::Pi()*5*5)*2 + 2*TMath::Pi()*5*10
(double) 471.239
```

# Solutions Exercise I

```
void Sol_Ex_1()
{
  Double_t radius[] = {5, 3.5, 25., 10., 9.76543};
  Double_t height[] = {10., 8., 3., 9., 6.54378};

  for (Int_t i=0; i<5;++i) {
    Double_t area = TMath::Pi() * radius[i] * radius[i];
    Double_t volume = area * height[i];
    Double_t surface = (2 * area) + (2 * TMath::Pi() * radius[i] * height[i]);
    cout << "A can with a radius of " << radius[i] << " cm and a height of "
         << height[i] << " cm has" << endl;
    cout << "Volume: "<< volume << endl;
    cout << "Surface: "<< surface << endl;
    cout << "----------------------------" << endl;
  }
}
```

```
demac019:~ uhlig$ root -l
root [0] .x Sol_Ex_1.C
A can with a radius of 5 cm and a height of 10 cm has
Volume: 785.398
Surface: 471.239
----------------------------
A can with a radius of 3.5 cm and a height of 8 cm has
Volume: 307.876
Surface: 252.898
----------------------------
A can with a radius of 25 cm and a height of 3 cm has
Volume: 5890.49
Surface: 4398.23
----------------------------
A can with a radius of 10 cm and a height of 9 cm has
Volume: 2827.43
Surface: 1193.81
----------------------------
A can with a radius of 9.76543 cm and a height of 6.54378 cm has
Volume: 1960.47
Surface: 1000.7
----------------------------
```