Interpolator

- vector<double> x
- vector<double> y
- map<string,TF1*> MI
- vector<double> a

Constructors
- Interpolator()
- Interpolator(initializer_list<pair<double,double>>)
- Interpolator(int,double*,double*)
- Interpolator(const vector<pair<double,double>>&)
- Interpolator(const vector<double>&,const vector<double>&)

Destructor
- ~Interpolator()

Interpolation Methods
- void Init()
- double InterpolateLagrange(double)
- double InterpolateNewton(double)
- double InterpolateSpline3(double)
- double CosineInterpolate(double)
- double Lagrange(double*,double*)
- double Newton(double*,double*)
- double Spline3(double*,double*)
- double Cosine(double*,double*);

Draw
- void Draw(string s)

IntegDeriv

- Functor& F

- IntegDeriv(Functor&)
- ~IntegDeriv()
- void Dump(double,double)

Integration Methods
- void TrapezoidalRule(double,double,double&,double&,bool)
- void simpsonRule(double,double,double&,double&)
- void MonteCarloNormal(double,double,double&,double&)
- void MonteCarloVonNeumann(double,double,double&,double&,int)

Derivative Methods
- double SecondDerivative(double,double)
- double FirstDerivative(double,double)
- double FourthDerivative(double,double)
- double ThirdDerivative(double,double)

pendulum_p

- double L
- double m
- double kf
- double g
- Xvar X0
- map<string,vector<ODEpoint>> MS
- function<double(ODEpoint)> f[2]
- vector<ODEpoint> points
- vector<ODEpoint> points_dimension

Constructors
- pendulum()
- pendulum(vector<ODEpoint>,double,double,double)
- pendulum(double,const Xvar&)
- pendulum(double,initializer_list<double>&)
- pendulum(double,double,double)

Destructor
- ~pendulum()

Getter
- const vector<ODEpoint> GetPointsDimension()

Solvers
- const vector<ODEpoint> StormerVerletSolver(double,double);
- const vector<ODEpoint> Euler(double,double);
- const vector<ODEpoint> EulerCromer(double,double);
- const vector<ODEpoint> Trapezoidal(double,double);
- const vector<ODEpoint> RungeKutta4(double,double);
- const vector<ODEpoint> RungeKutta2(double,double);

Calculators
- double Energy(ODEpoint)
- double Tension(ODEpoint)
- double DissipatedEnergy(double)
- vector<pair<double,double>> Period_Amp()
- vector<pair<double,double>> Period_Time()

Draw
- void Draw(string,string,double,double);
- void DrawTeta(TCanvas*,double);
- void DrawTetaVSTetaPoint(TCanvas*,double);
- void DrawTetaANDTetaPoint(TCanvas*,double);
- void DrawEnergy(TCanvas*,double);
- void DrawTension(TCanvas*,double);
- void DrawOTimeVSOAmp(TCanvas*,double);
- void DrawPower(TCanvas*,double);
- void DrawPeriod(TCanvas*,double);

ODESolver

- ODEpoint X0
- vector<function<double(ODEpoint)>> F
- map<string,vector<ODEpoint>> MS
- --

Constructors
- ODESolver(const vector<function<double(ODEpoint)>>&)
- ODESolver(const vector<function<double(ODEpoint)>>&,const ODEpoint&)

Setters
- void SetInitialPoint(const ODEpoint&)

Solvers
- const vector<ODEpoint> StormerVerletSolver(double,double);
- const vector<ODEpoint> Euler(doubledouble);
- const vector<ODEpoint> EulerCromer(doubledouble);
- const vector<ODEpoint> Trapezoidal(doubledouble);
- const vector<ODEpoint> RungeKutta4(doubledouble);
- const vector<ODEpoint> RungeKutta2(doubledouble);

Draw
- void Draw(string,string,string,double,double)

DataPoints

- TCanvas* : c
- vector<pair<double,double> > : P

Constructors
- DataPoints()
- DataPoints(int,double* ,double*)
- DataPoints(const vector< double>&,const vector<double>&)
- DataPoints(const vector<pair<double,double>>&)
- DataPoints(initializer_list<pair<double,double>>)

Destructor
- ~DataPoints()

Getters
- const vector<pair<double,double>>& GetPoints() const
- void GetGraph(TGraph&);

Draw
- {virtual} void Draw();

Friends
- «friend» ostream& operator<< (ostream&,const DataPoints&);

MyFunction

- function<double(double)> function

- MyFunction(string,function<double(double)>)
- ~MyFunction()
- {virtual} double operator()(double)

Functor

- TCanvas *c
- string name

- Functor(string)
- ~Functor()
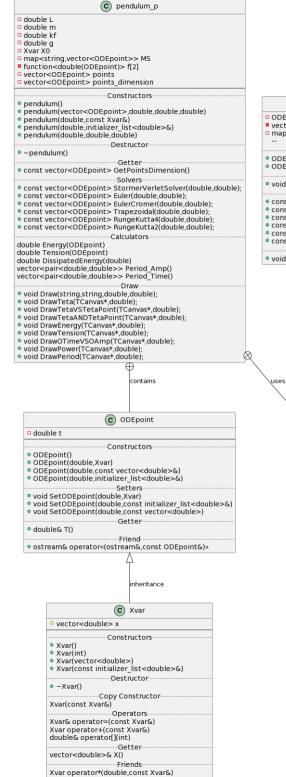- {virtual} double operator()(double)
- {virtual} void Draw(double,double,int,string,string)

ODEpoint

- double t

Constructors
- ODEpoint()
- ODEpoint(double,Xvar)
- ODEpoint(double,const vector<double>&)
- ODEpoint(double,initializer_list<double>&)

Setters
- void SetODEpoint(double,Xvar)
- void SetODEpoint(double,const initializer_list<double>&)
- void SetODEpoint(double,const vector<double>)

Getter
- double& T()

Friend
- ostream& operator«(ostream&,const ODEpoint&)»

Xvar

- vector<double> x

Constructors
- Xvar()
- Xvar(int)
- Xvar(vector<double>)
- Xvar(const initializer_list<double>&)

Destructor
- ~Xvar()

Copy Constructor
- Xvar(const Xvar&)

Operators
- Xvar& operator=(const Xvar&)
- Xvar operator+(const Xvar&)
- double& operator[](int)

Getter
- vector<double>& X()

Friends
- Xvar operator*(double,const Xvar&)
- ostream& operator<<(ostream&,const Xvar&)

RootTools

- RootTools()
- ~RootTools()
- void TDrawVector(double,double,double)
- void TDrawVector(double,double)
- void CanvasUpdater(TCanvas*,bool,string)
- void CanvasUpdater(TCanvas,bool,string)

inheritance

uses

contains

uses

uses