Inkscape

Matthieu Haefele

High Level Support Team

Max-Planck-Institut für Plasmaphysik, München, Germany

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What is inkscape software ?

- Free and open source software
- Vector graphics edition/creation
- Standard Vector Graphics format based (SVG), the W3C standard
- Similar capacities as Illustrator, Freehand, CorelDraw or Xara X

What can inkscape do ?

Figure: AndyFitz

Figure: AndyFitz

What can inkscape do ?

Figure: Rich Burlew

Figure: Yuri Apostol

Cool, but I am a physicist !

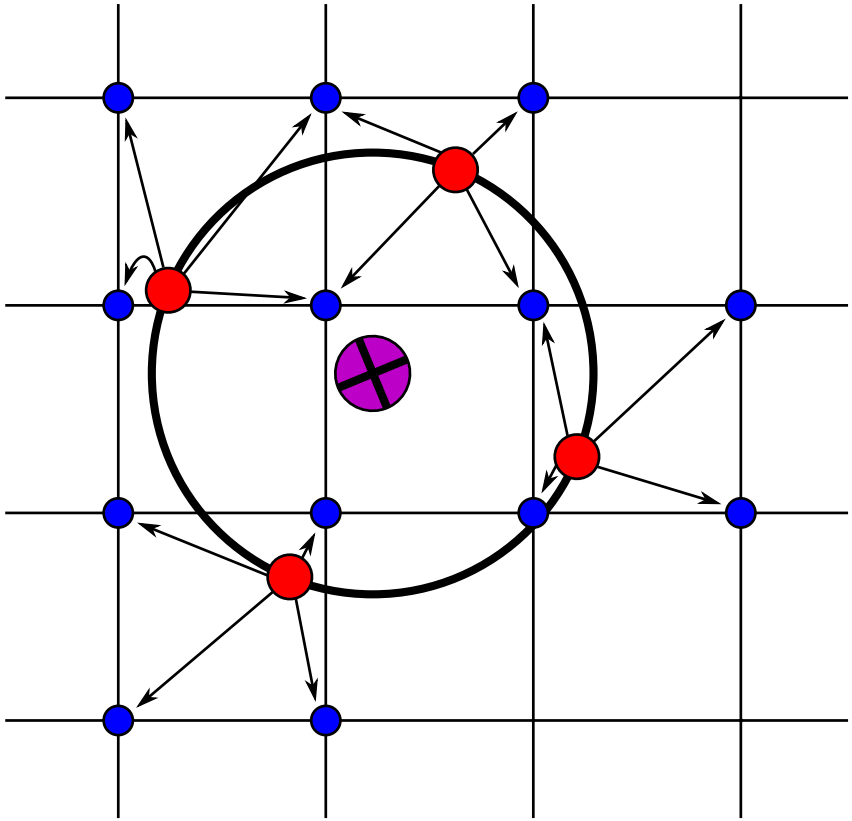

Figure: Matthieu Haefele

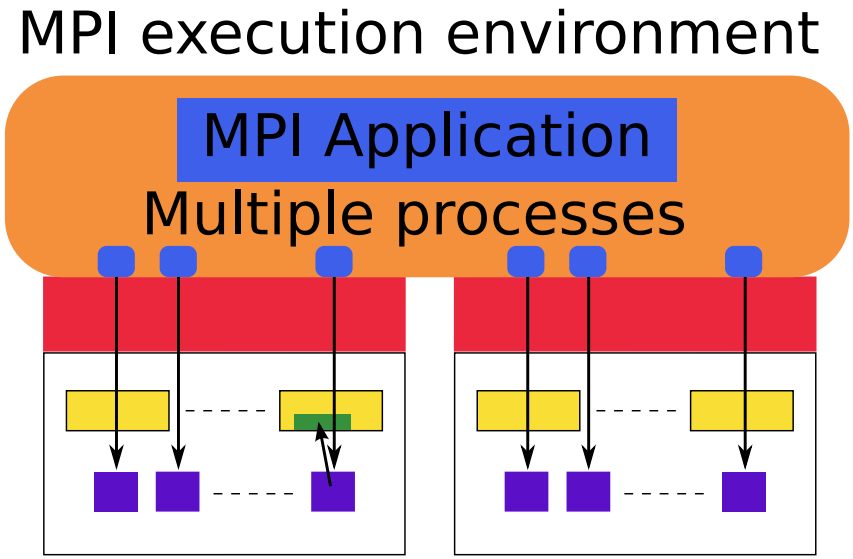

Figure: Matthieu Haefele

Vector (svg, ps, . . .) vs Raster (png, jpg, tiff, . . .)

- **Raster is an array of dots that “appear” to be shapes**
  - Pro: With sufficient resolution can be photo-realistic
  - Con: Takes up lots of space even for simple geometric representations
  - Con: Difficult to split into component pieces for further editing
- **Vector is real 2D shapes**
  - Pro: Geometric representations scalable to any resolution
  - Pro: Easy to edit component pieces
  - Con: Difficult to do photo-realistic images at small file sizes

The user interface

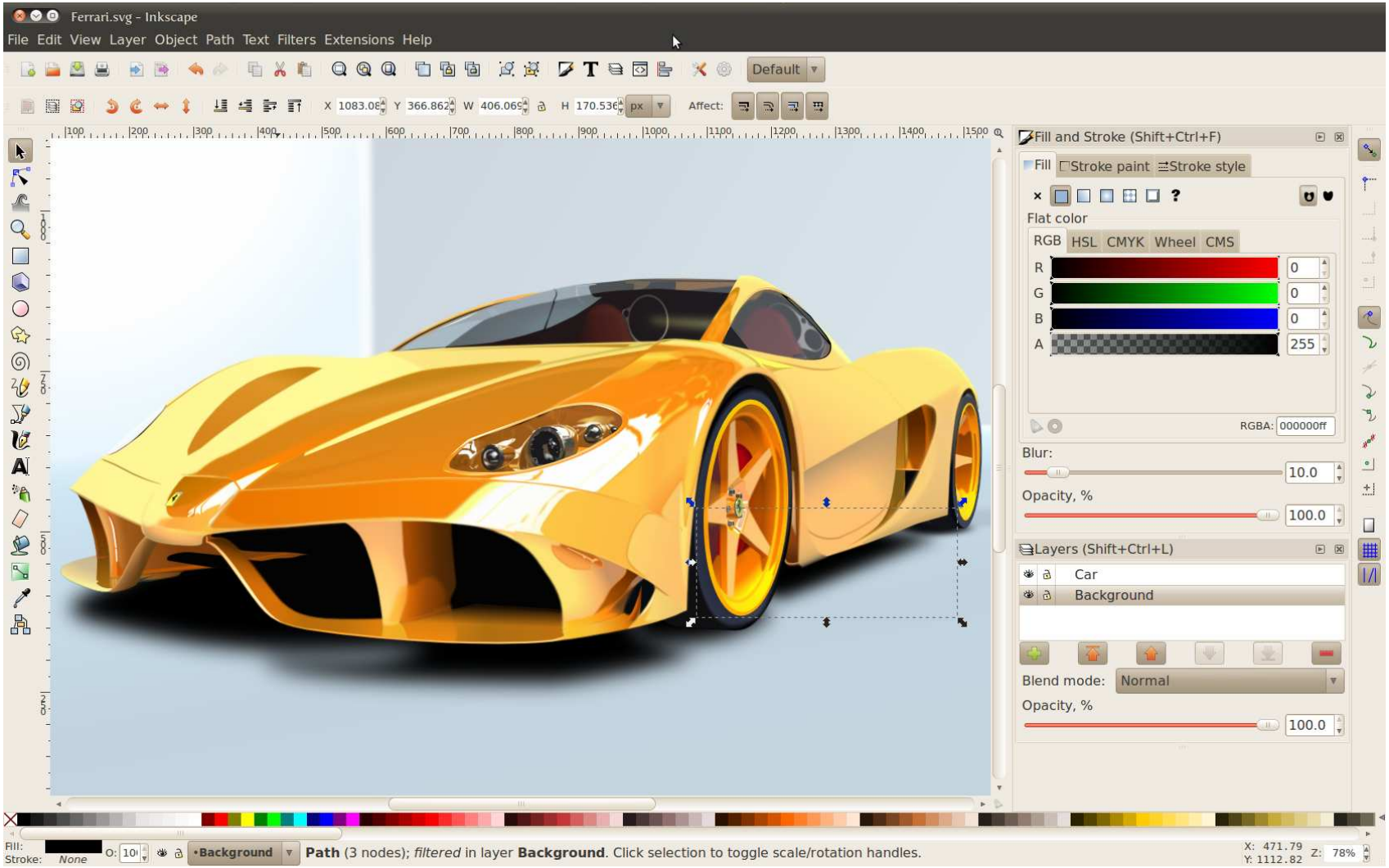

Figure: Gilles Pinard

Objects and paths in inkscape

Objects and paths are the two main entities that are manipulated within an inkscape drawing

- **Paths are the most low level entity**
  - A line/set of lines and each line is made of nodes
  - Tangents can be defined at each node
  - Each line can be closed to form a shape

- **Objects are made of paths**
  - They are manipulated at a higher level of abstraction
  - Typically a single control handle modifies the position and the tangents of several nodes
  - Squares, ellipses, spiral, stars . . .

An object or its stroke can be turned into one or several paths, but not the other way around.

Usage in combination with gnuplot

Gnuplot is able to generate a SVG file containing the figure

- Use minimal script in gnuplot
- Change with inkscape
  - Color
  - Font, font size
  - Add arrows
  - Add text
  - ...
- In combination with LaTeX, text in the svg can be replaced with LaTeX fonts thank to psfrag command

Gnuplot commands

```
set xrange [0:4*3.14]

set terminal png
set output 'fig_gnuplot.png'
p sin(x) with line, sin(x-3.14) w l

set terminal postscript
set output 'fig_gnuplot.eps'
p sin(x) with line, sin(x-3.14) w l

set terminal svg
set output 'fig_gnuplot.svg'
p sin(x) with line, sin(x-3.14) w l
```