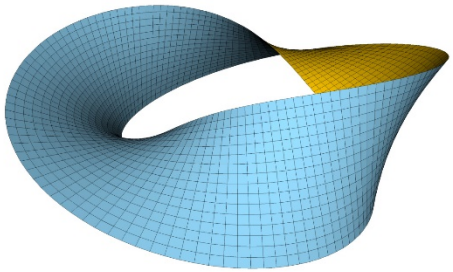
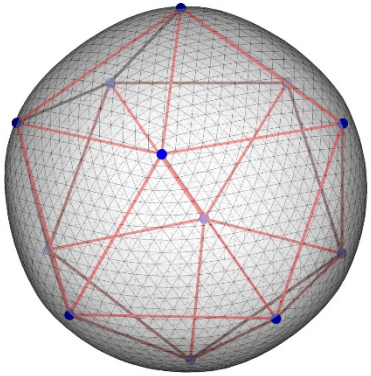
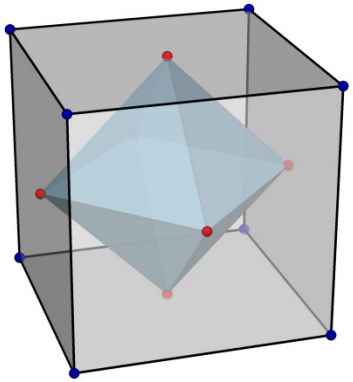






Using JavaView

ABV Visualization

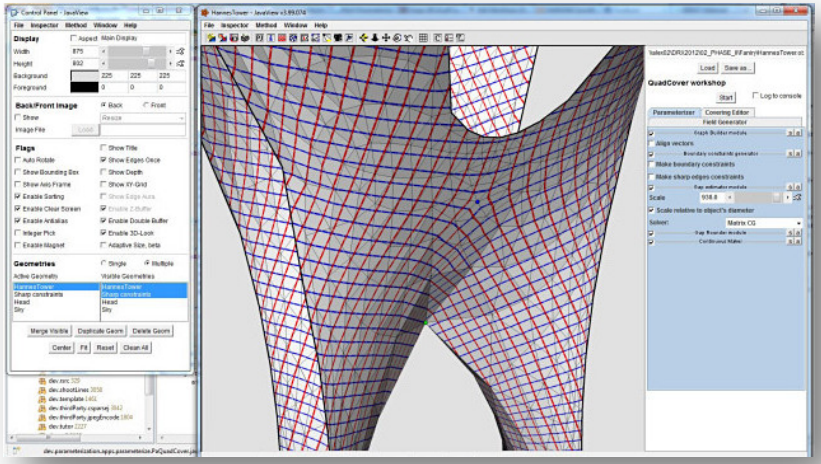
Mathematical Geometry Processing

Freie Universität Berlin

JavaView

- Geometry library and front end
- Used as application or development framework

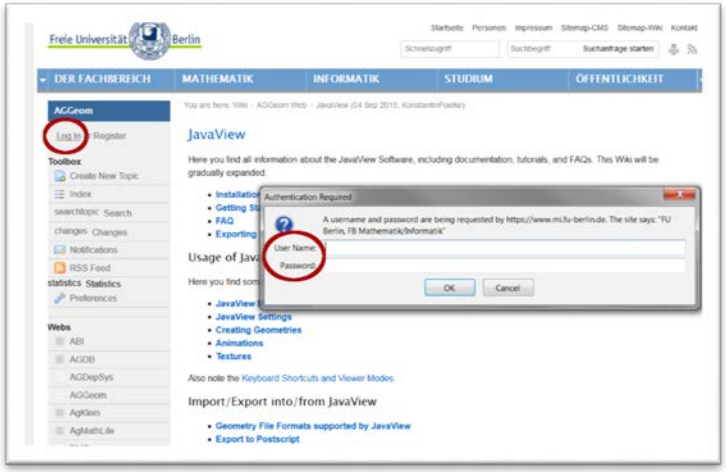
- Download: http://javaview.de/download/
- Pick „javaviewFull.zip“ or the Windows installer
- Unzip
- Runnable files in /bin:
  - „javaview.bat“ (Windows)
  - „javaview“ (Linux)



JavaView Wiki

- http://www.mi.fu-berlin.de/w/AGGeom/JavaView

- Huge collection of documentation for
  - Usage, Installation, Development
  - Style Guides, Hints, Performance, Keyboard Shortcuts (!),…
  - Tutorials, Menu entries, import/export,…
- Still in early stage



- Feel free to edit and improve
  - … if something is unclear
  - … if something is wrong or outdated

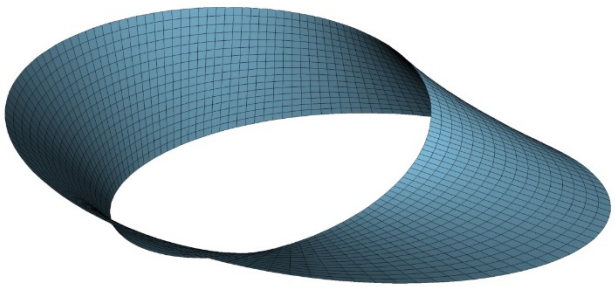
- You need to log-in with your FU account credentials

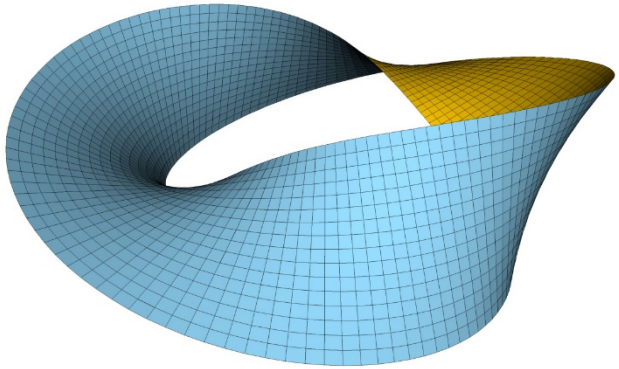
- Your help is very appreciated ☺

Exercise 1 - Parametrized Surfaces

- Add a new parametrized surface geometry:
  `File > New > Geometry > Surfaces > Parametrized Surface`

1. Find a parametrization for a Meobius strip and visualize it
2. Attach the element normals. What do you find?
3. Now re-parametrize the surface to a double-twisted strip and visualize the element normals again.

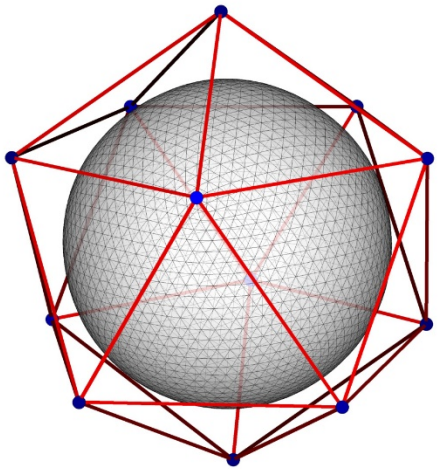


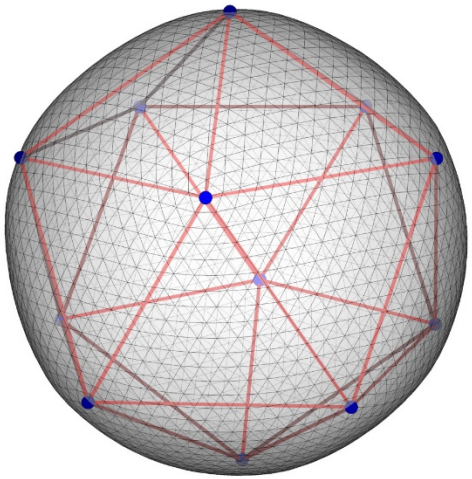


Exercise 2 – Subdivision Surfaces

- Add an Icosahedron as a new geometry
  `File > New > Geometry > Surfaces > Platonic Solids`

1. Do a sequence of subdivision steps using the Loop algorithm
2. Do a sequence of subdivision steps using the Butterfly algorithm
3. Compare the results. What are the differences?

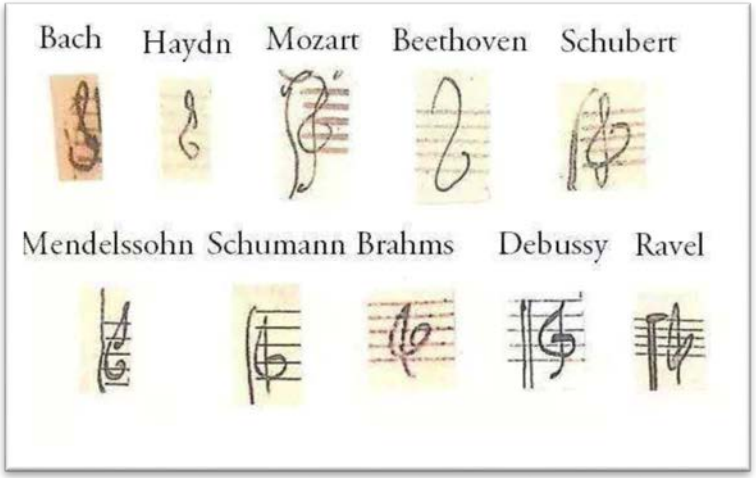




Exercise 3 – Bézier Curves

- Start the de Casteljau project
  `File > New > Geometry > Curves > De Casteljau`

1. Trace a treble clef („Violinschlüssel“) as shown below
2. What is the minimum number of control points you need to get a decent result?



If you are not happy with your result, don‘t worry: some of the most ingenius composers had their troubles, too.

Exercise 4 – Material and Model Transformation

- Add two platonic solids as new geometries to the same display.
  `File > New > Geometry > Surfaces > Platonic Solids`
- Make sure that `Current Project: Add` is selected.

1. Add a cube and an octahedron. Your display should now contain both geometries.
2. Visualize the duality between these two solids.

3. *Optional:* Try the same for the dodecahedron and the icosahedron.
4. *Optional:* What happens if you use the tetrahedron?
5. *Optional:* Can you visualize all dualities at once?