

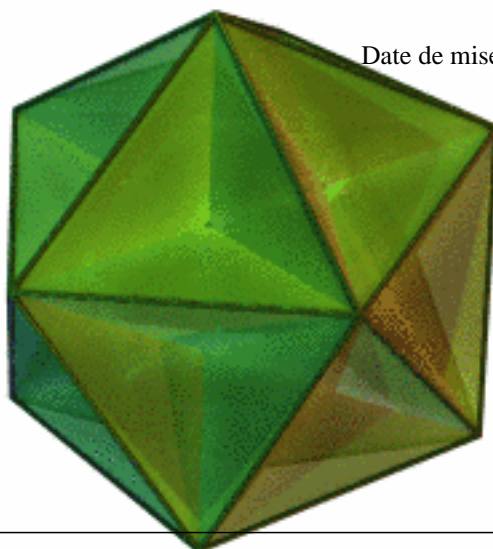
Extrait du
UREM :
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Le plan projectif réel : vidéo sur YouTube

- Equipes de travail - Géométrie dynamique -

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Jean-Claude Matthys recommande le vidéo suivante

[The real projective Plane](#)

The projective plane is the space of lines through the origin in 3-space. In the projective plane, we have the remarkable fact that any two distinct lines meet in a unique point. Moreover, we may not distinguish between different kinds of smooth conic sections, e.g. between an ellipse and a hyperbola, as illustrated by the animation.

Notice that to each line through the origin correspond two antipodal points of a sphere which is centered at the origin. Instead of looking at the lines in total, we may thus restrict ourselves to the points on the sphere. Here, a line becomes a great circle and it is clear that any two such circles meet in a unique pair of antipodal points. Similarly, we may see that a hyperbola is projectively the same thing as an ellipse. Going back to the definition : They are both just a cone in 3-space ; each line on the cone is one projective point of the projective conic section.

This animation was made by Oliver Labs using surfex.

This animation was #3 on our geometric animations advent calendar :

<http://www.calendar.algebraicsurface.net>