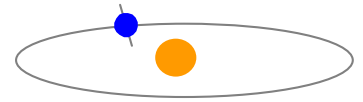


Fluid Optics™ Letter

# La lettre des Syzygies



2001, September

## EDITORIAL

**W**e have the pleasure to present you the letter of the syzygies of the autumn equinox in which you will find two articles: a first on Talisman the last RENAULT concept car, the second on the continuation of the software column of the last Syzygies letter.

*The inventors of the Fluid Optics*

## SOFTWARE

### *XTridi arrive under Rhinocéros*

**I**n this article, we present the continuation of the software column of the previous letter.

We saw in the previous letter possibilities offered by Xtridi to handle files of points and to create models of points and curves. At the moment, we are going to be interested in Xtridi processing capacities to generate mo-

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## SUMMARY

### *Editorial*

### *Exhibition of Frankfurt am Main*

Talisman, last RENAULT concept car, showed at 59<sup>TH</sup> international motor show passenger cars 2001

### *Software*

XTridi arrives under Rhinoceros

### *News*

## EXHIBITION OF FRANKFURT AM MAIN

### TALISMAN, LAST RENAULT CONCEPT CAR, SHOWED AT 59<sup>TH</sup> INTERNATIONAL MOTOR SHOW PASSENGER CARS 2001

**A**s we write these lines, Talisman, the last concept car of RENAULT, is presented at the Motor-Car Show of Frankfurt 2001. After KOLEOS, Fluid Optics again brings all its magic to the Talisman.



Compare to all the concept cars presented at the exhibition, Talisman presents the most innovative and the most beautiful headlamps.

Only the AUDI concept car presents a good technical idea too. Headlamps are placed in front of the car, send their beam of light towards the sky and mirrors are used to reflect light on the road. These mirrors are movable and allow to

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adapt the lighting of the road to different situations.



### *A concept which has stood the test of time*

As for Koleos, the last concept car of RENAULT again adopts the technology of the Fluid Optics for the headlamps.

Thanks to the excellent team of design of RENAULT, the conception of this headlamp became an original and spectacular design. The Fluid Optics is not only associated to an arch-shape as for Koleos but can take a multitude of shapes to serve the design.



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### ***A technology at the service of the designers***

For Talisman, the designers of Renault privileged fluidity and simplicity. Here, air seems to sculpt the shapes. In front, they are punctuated with optical blocks which became slender lines of light at the edge of the wings.



They are real works of art, modern by their Fluid Optic's technology but they also evoke the time of the beautiful mascots of glass' radiator.

### ***An adaptable dioptric headlamp***

The visible part of the optics of the headlamp is only constituted with two transparent cylinders positioned transversely to the axis of the vehicle. No reflector, or no source are visible. The complexity of the technology is completely hidden. Headlamps seem simple, pure and light.

### ***Possible evolutions***

The headlamp was conceived to be able to pass from high beams to low beams by a simple rotation of cylinders. The rotation of cylinders could be even enslaved with an electronic computer assuring various functions such as the regulation of the height of the light beams according to the load of the vehicle or the driving.

In this headlamp concept, it would be possible, by using the movement of a dioptric piece integrated into cylinders, to direct beams according to the rotation of wheels or some electronic outside information. This could ensure the optimal lighting in bends.

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## ***Continuous Innovation***

Today, many headlamps use projectors composed by modules using a light bulb, an elliptic reflector, a mask and a lens. Often, they are presented today as reference projectors for low beams. But this technique dates for more than 100 years ago because it is finally only a resumption of the technique of film projectors. MEGALUX, a French firm small, persists in studying only completely innovative concepts. In the last letter of Syzygies, published by the inventors of the Fluid Optics, a new improvement of these headlamps with lenses is proposed. Innovation bases on the use of a completely transparent reflector already presented a long time ago on the Internet site of the Fluid Optics ( <http://www.optique-fluide.org> ).

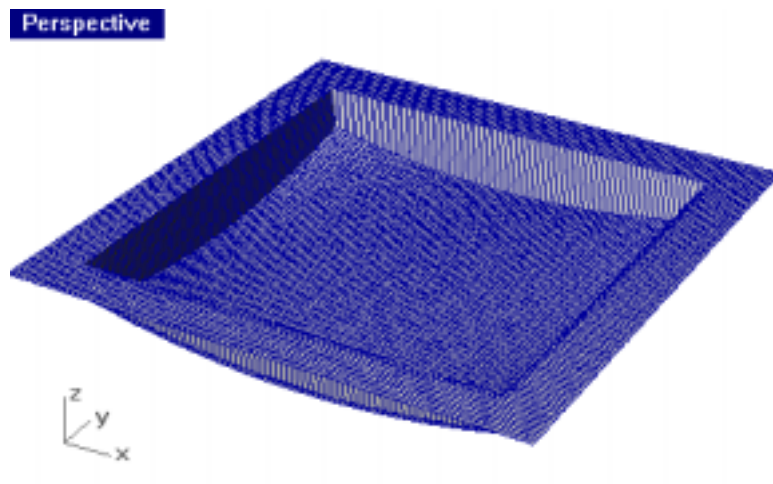
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dels of surfaces.

## **SURFACES**

### ***Interpolation***



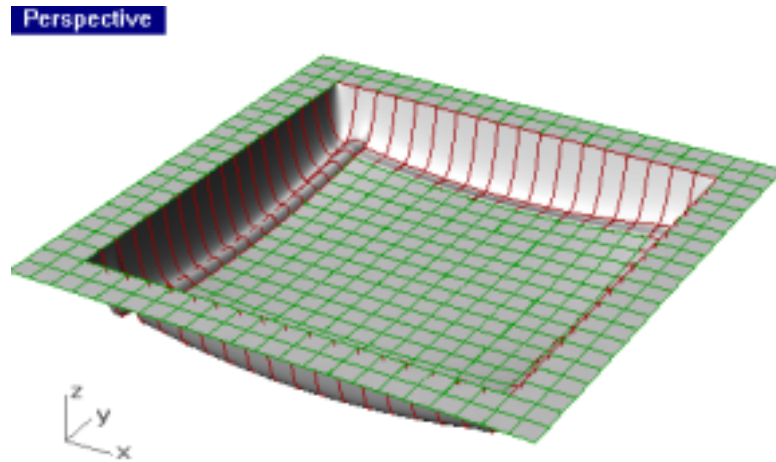
In our example, we take 10x10 points which are interpolated for the order 1 to form a NURBS surface of 1x1 order. This surface contains 10 control points. Every surface is attached to the others. Model is rebuilt with 121 surfaces.

The number of points to be taken to create every surface in U and V parameters is customizable. Order in U and V is also customizable. Also, it is possible to create a single NURBS surface of 1x1 order to represent our model.

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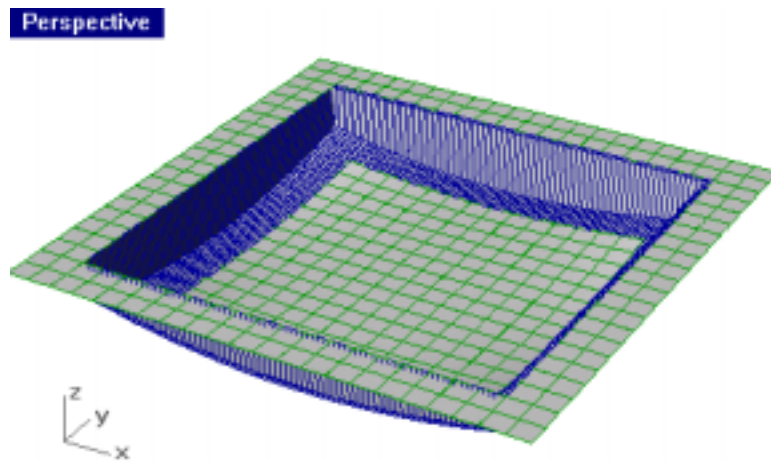
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## Approximation



As for curves, the purpose of the approximation is to reduce the number of control points of the built surface. In our example, we pass from a matrix of 10x10 measured points to a surface of 3x3 order including 4x4 control point. The created red surfaces do not obey the criterion of minimal tolerance of a value in this case of 0,1 mm.

## Correct Model

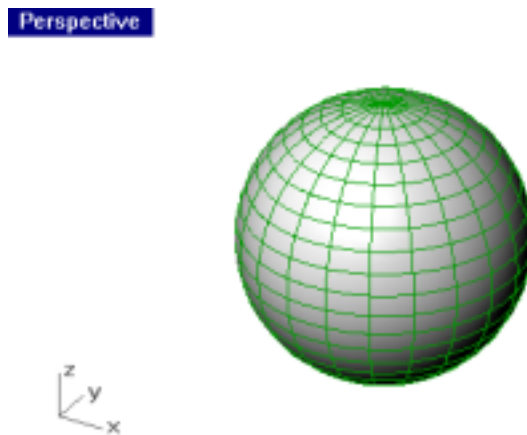


As for curves, from interpolation and approximation models, it is possible to create an approximated model with a tolerance of 0,1 mm.

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## Conclusion

XTridi is a good working tool on files of points structured according to a matrix.  
In the previous example, we treat structured measures according to X constants.  
As in the following case, it is possible to handle structured sections where any coordinate is not fixed.



In this example, the file contains structured section points which are the meridians of a sphere.

Improvements are possible in a next version, as the treatment of not structured files containing points forming a cloud of points.

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### **NEWS**

The Fluid Optics will be present at OPTO exhibition which will take place in Paris ("parc des expositions de Versailles", hall 7.1) from 23 till 25 Octobers. You are invited to visit us on the MEGALUX stand L 01 within the GIFO stand ("Groupement des Industries Françaises de l'Optique").

If there is a subject you wish to see treated in this letter, you can directly contact us by email at the address:

[syzygies@optique-fluide.org](mailto:syzygies@optique-fluide.org)

You can also join MEGALUX, the company charged to exploit Fluid Optics at the address:

[info@megalux.com](mailto:info@megalux.com)

### **NEXT LETTER**

The next Letter of the Syzygies will appear for the winter solstice, end of December.