NA Regional Summit 2008 NAFEMS

2020 Vision of Engineering Analysis and Simulation

October 29 - 31, 2008 | Hampton, Virginia

T-Splines and Isogeometric Analysis

Michael A. Scott

University of Texas at Austin

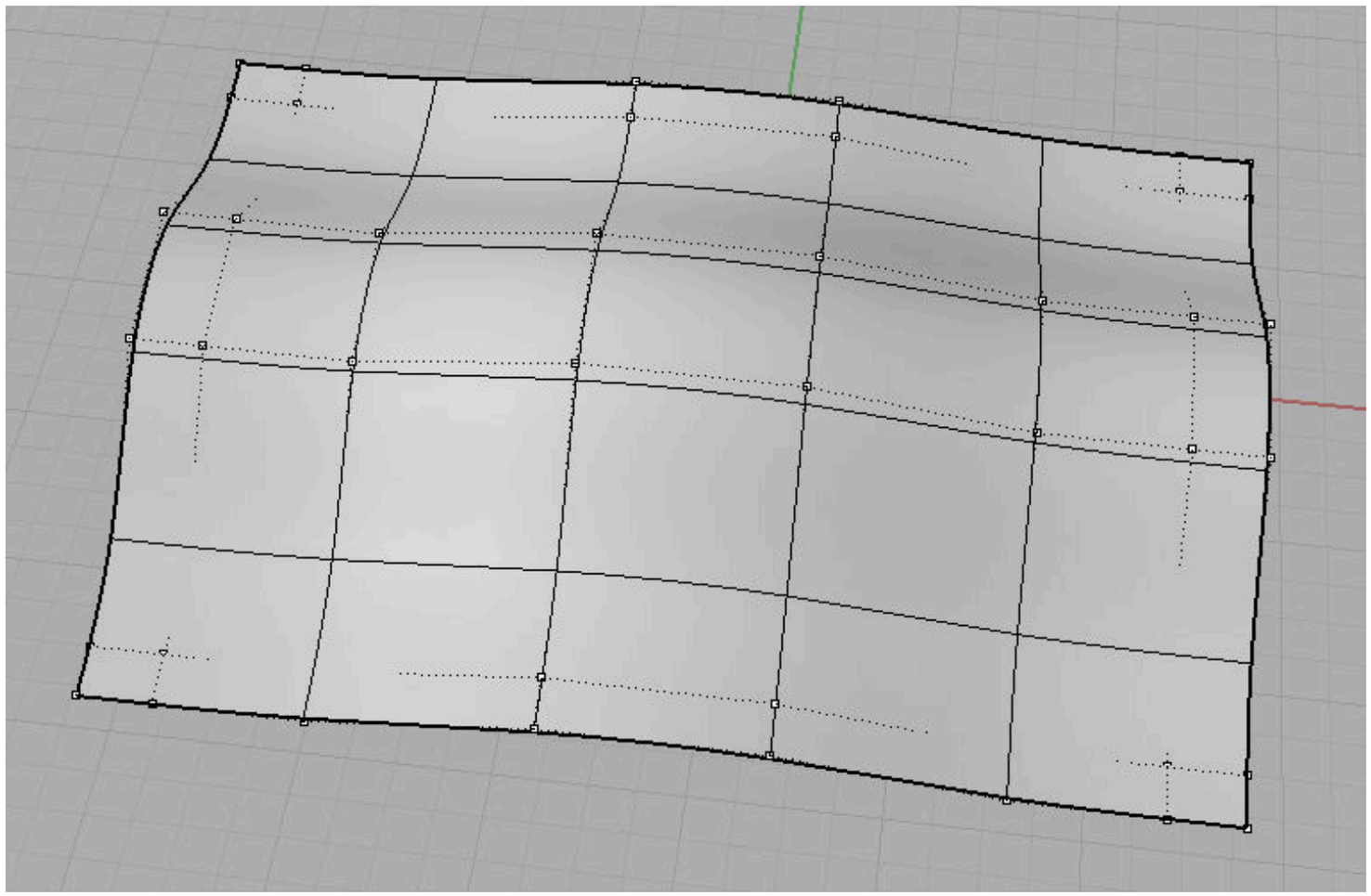
T-Splines, Inc.

NURBS

Rectangular

Not watertight

Trimmed



NURBS

Rectangular

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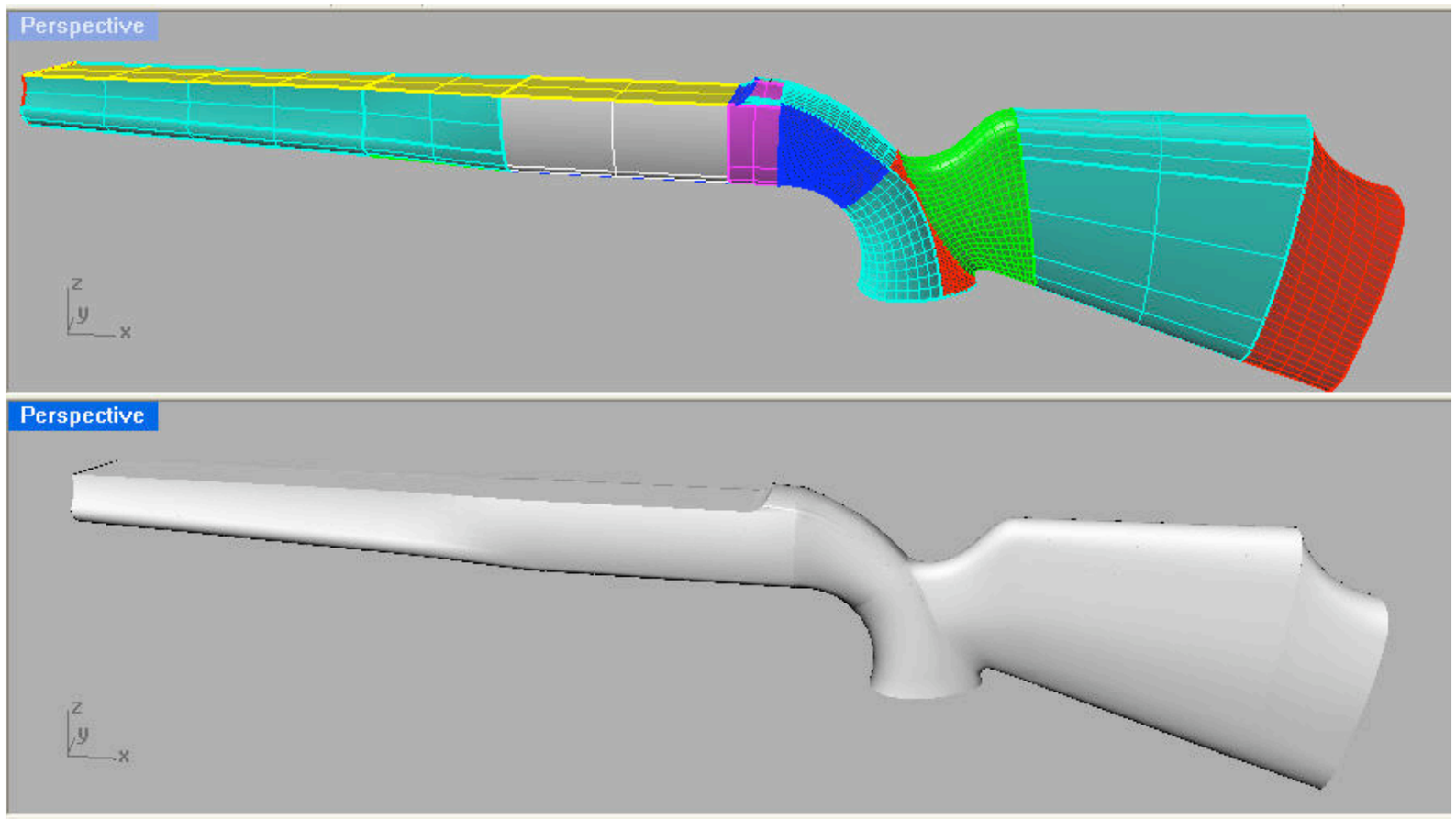
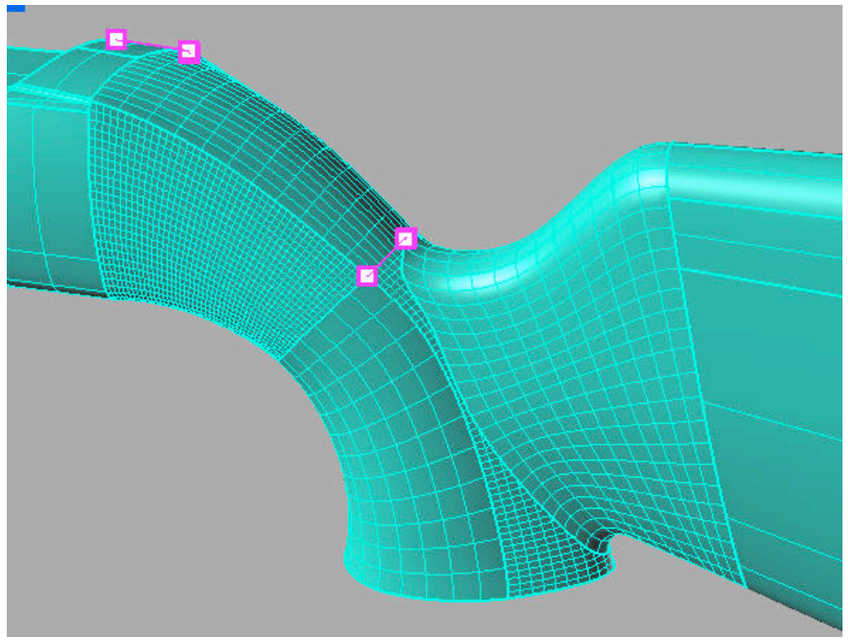
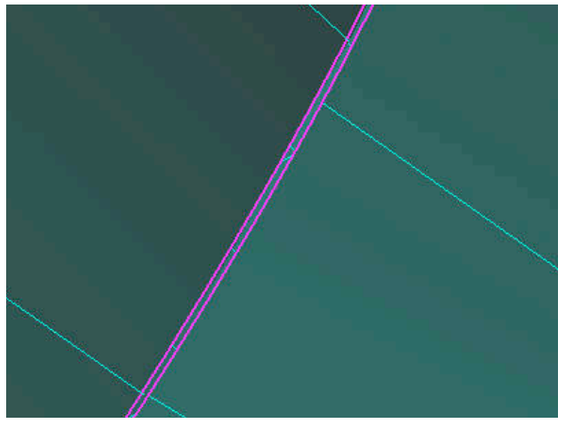


NURBS

Rectangular | **Not watertight** | Trimmed

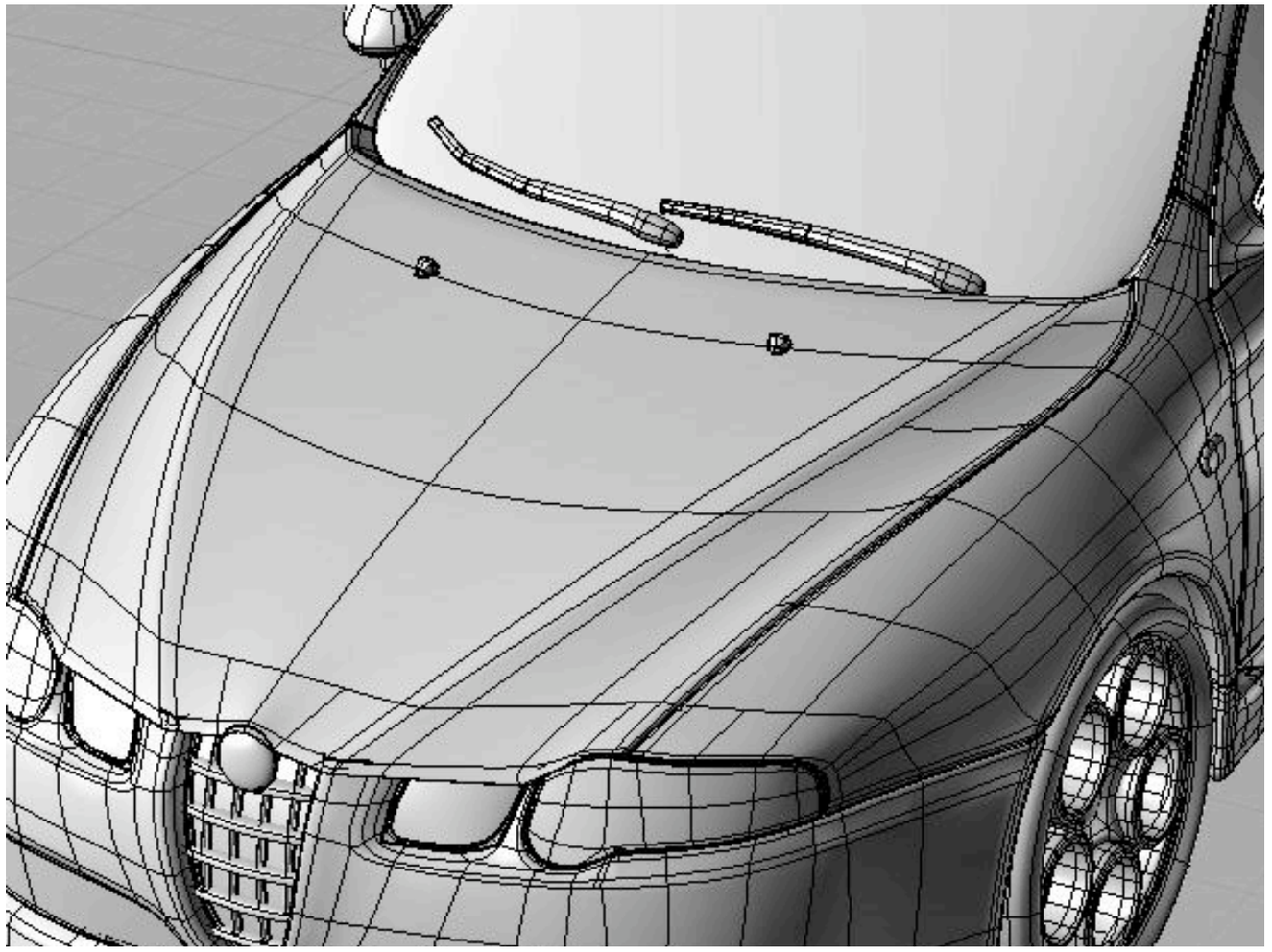




NURBS

Rectangular Not watertight Trimmed

T-Splines



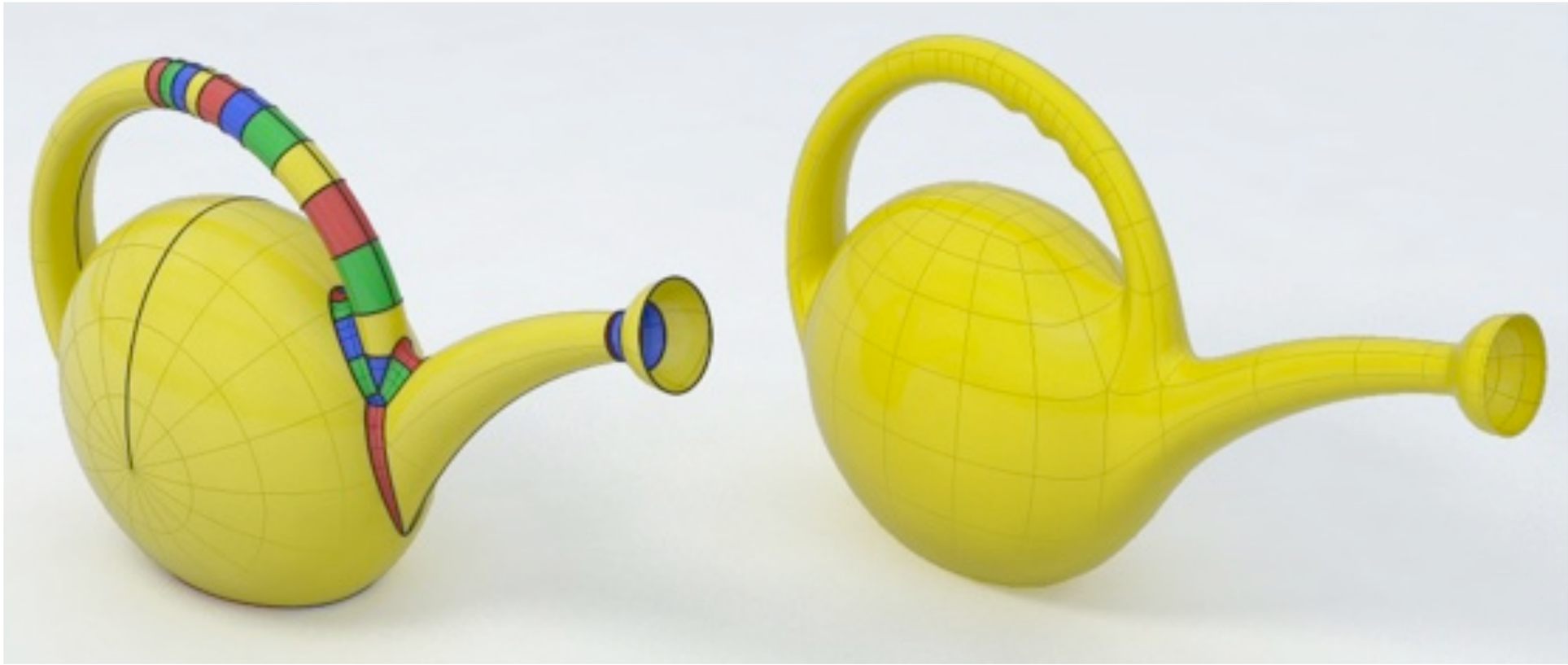
Model by Tibor Toth

T-Splines

Non-rectangular

Local control

Analysis Suitable



NURBS

T-Splines

T-Splines

Non-rectangular

Local control

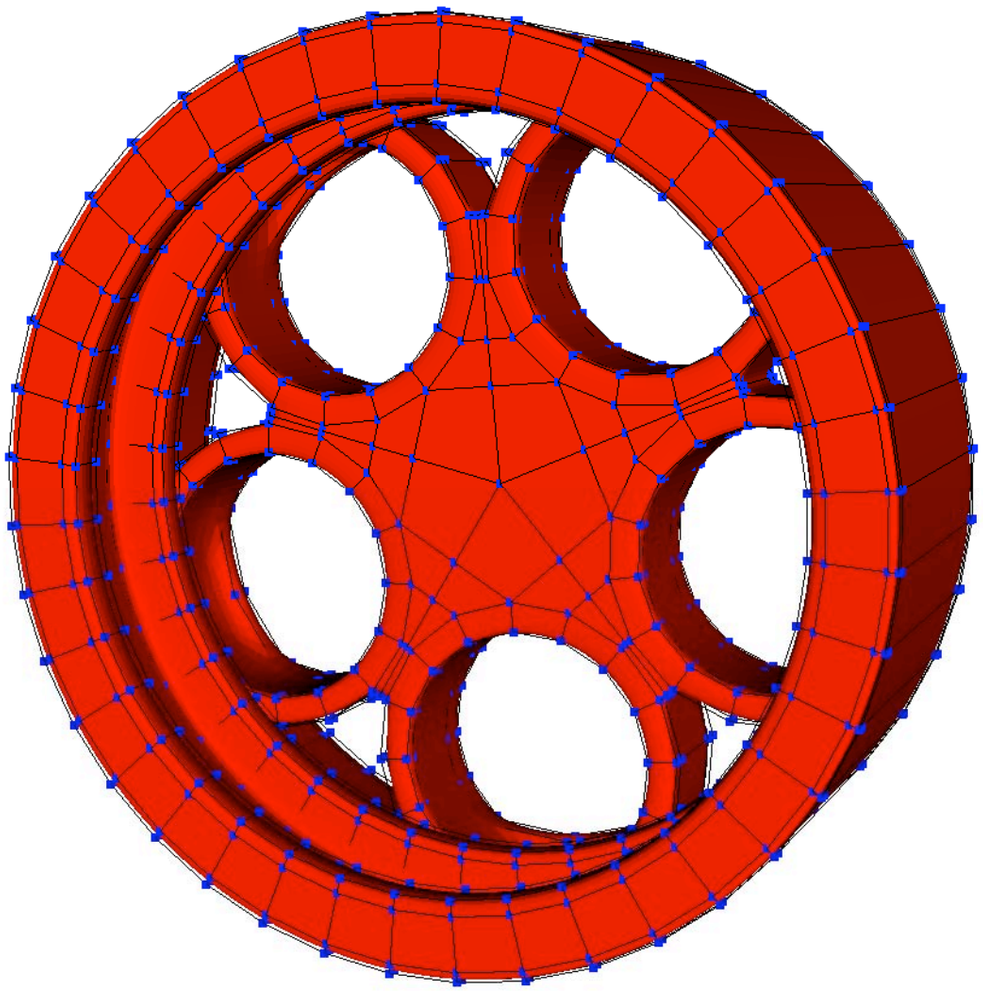
Analysis Suitable

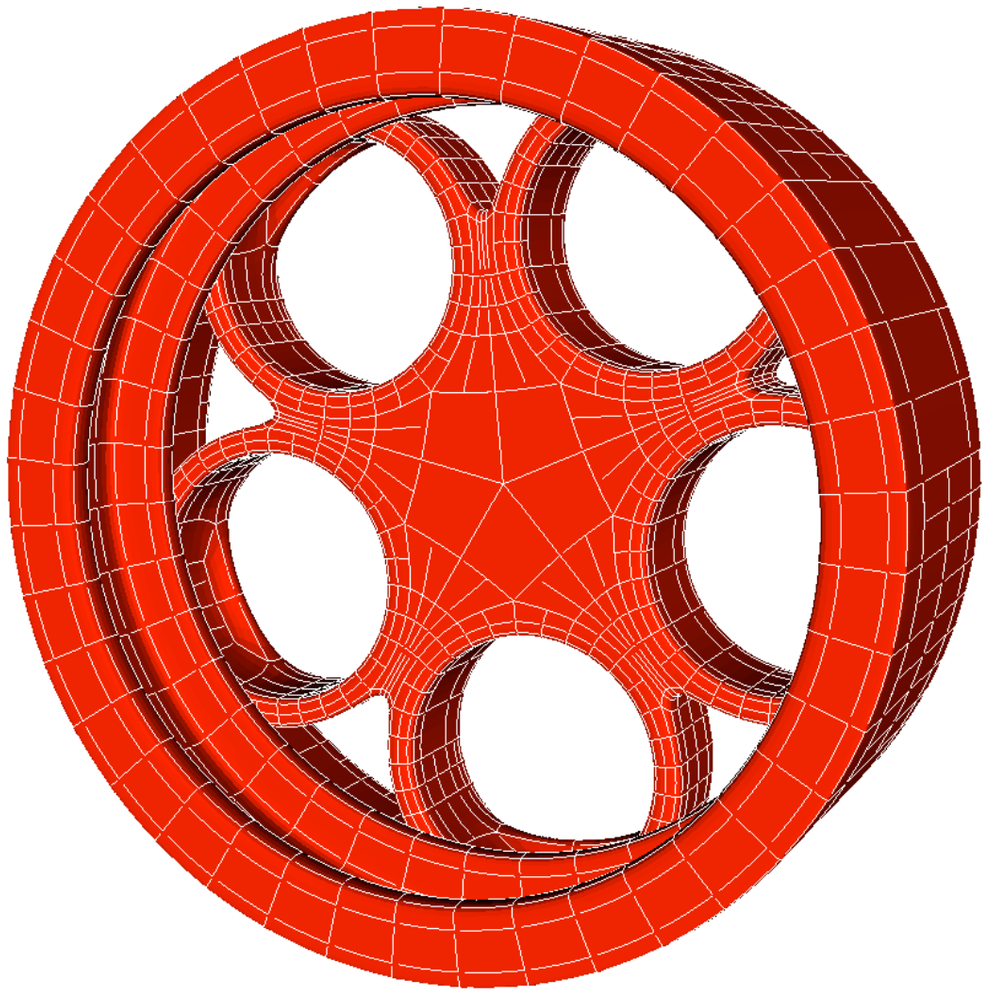
T-Splines

Non-rectangular

Local control

Analysis Suitable



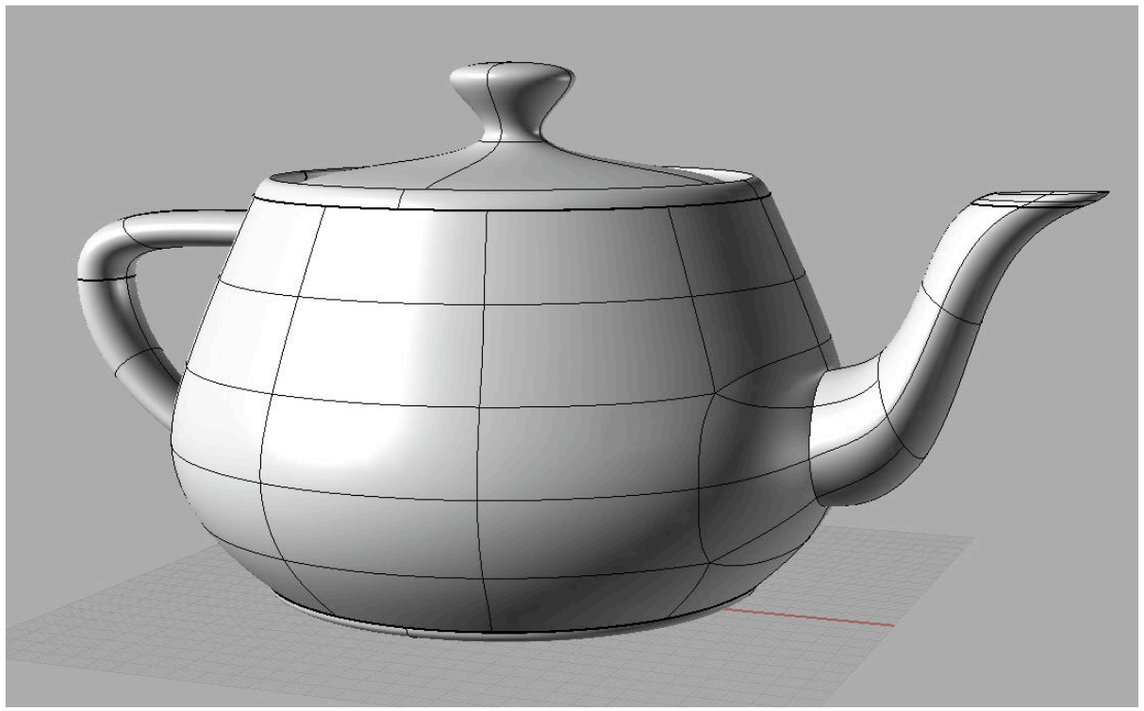


Compatibility

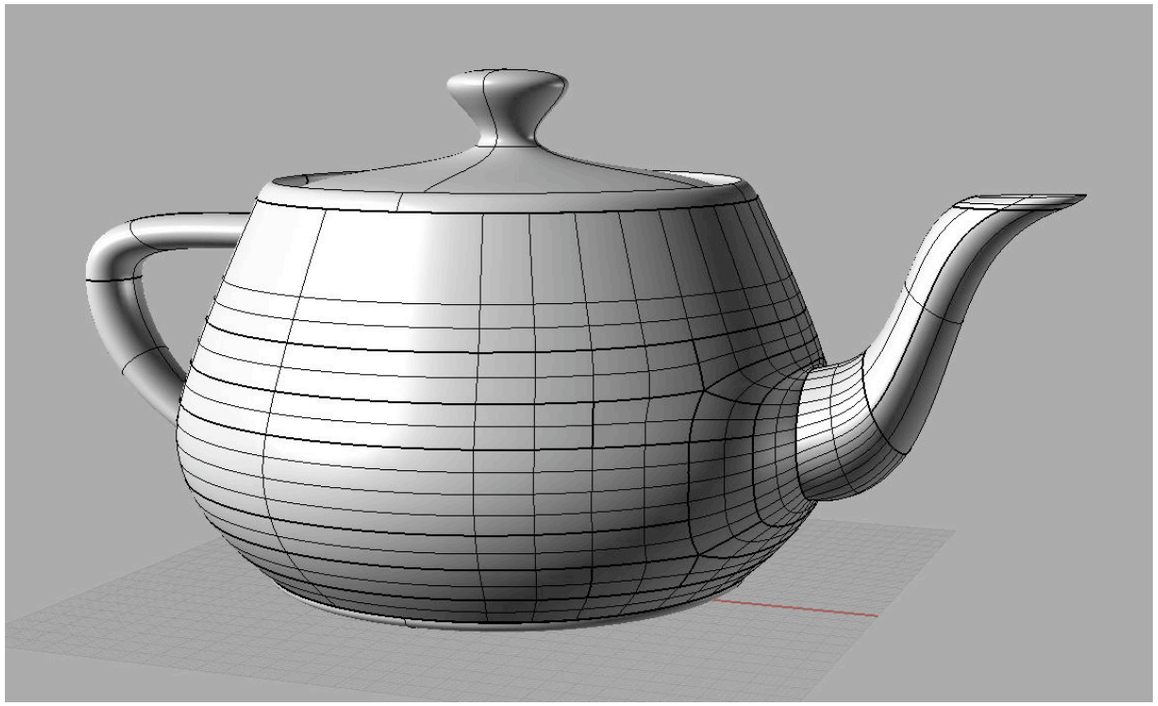
“The T-Spline technology addresses some important limitations in conventional NURBS surfaces and is forward and backward compatible with NURBS.”

Dr. Rich Riesenfeld, NURBS inventor, University of Utah

Compatibility



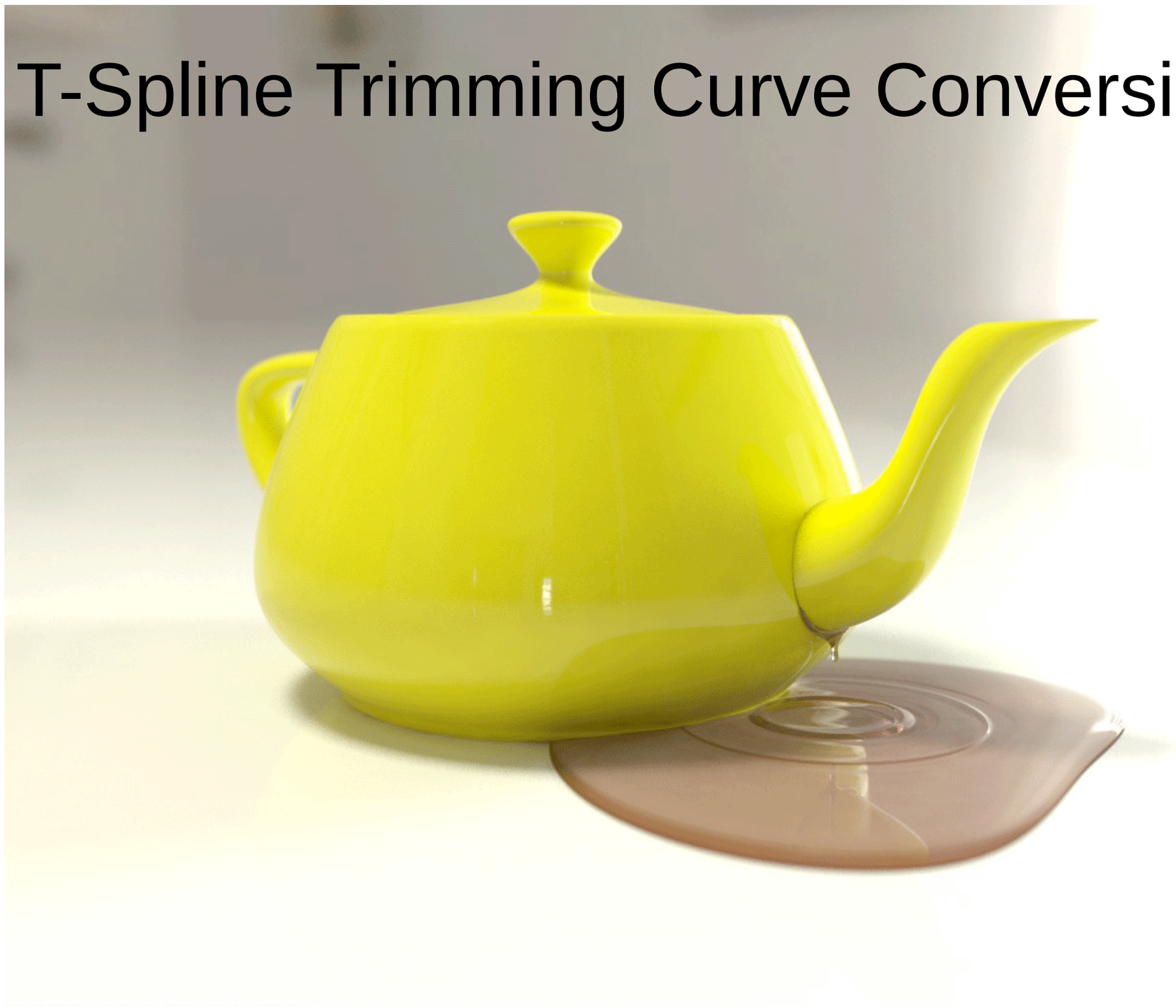
T-Splines

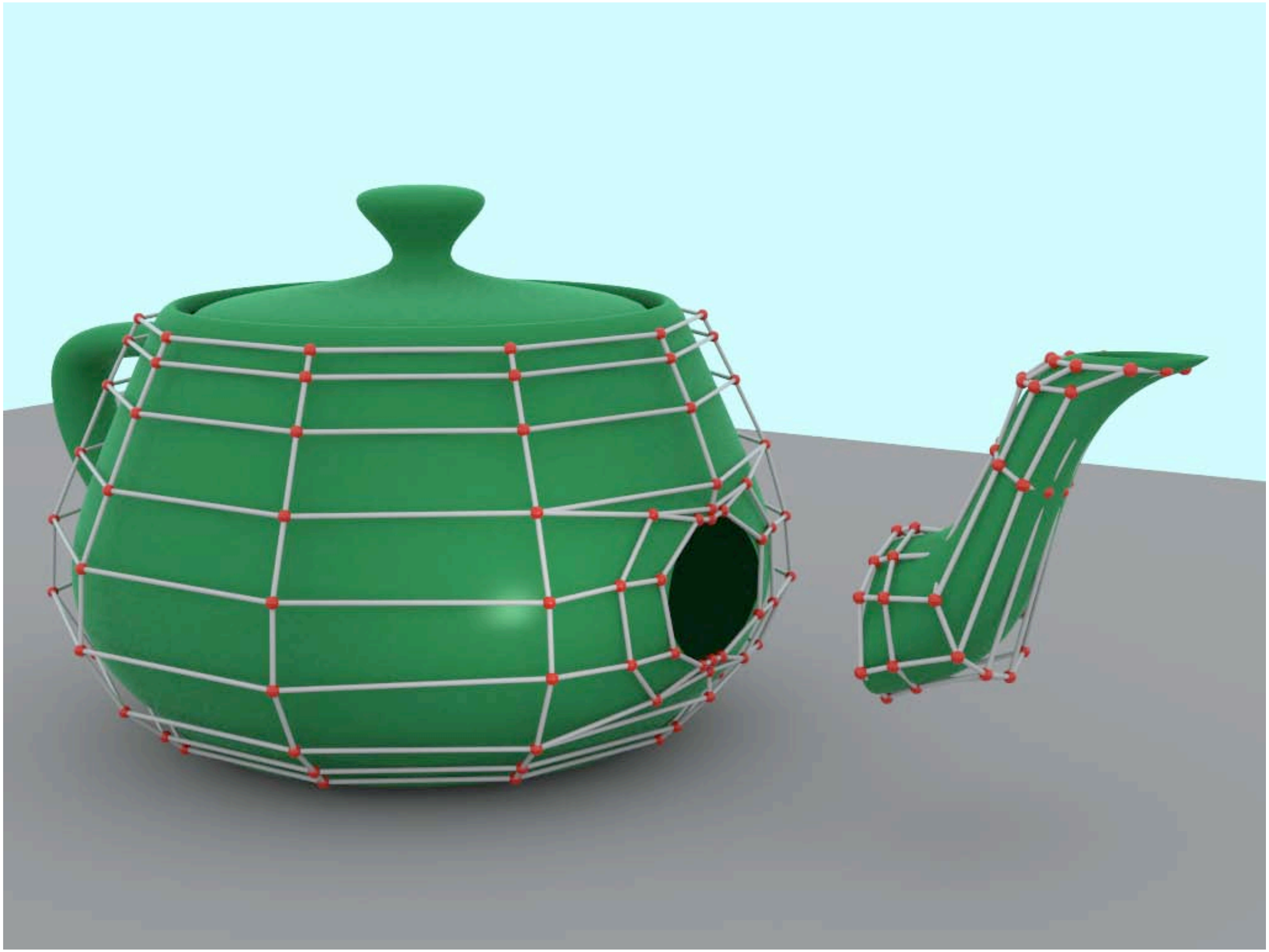


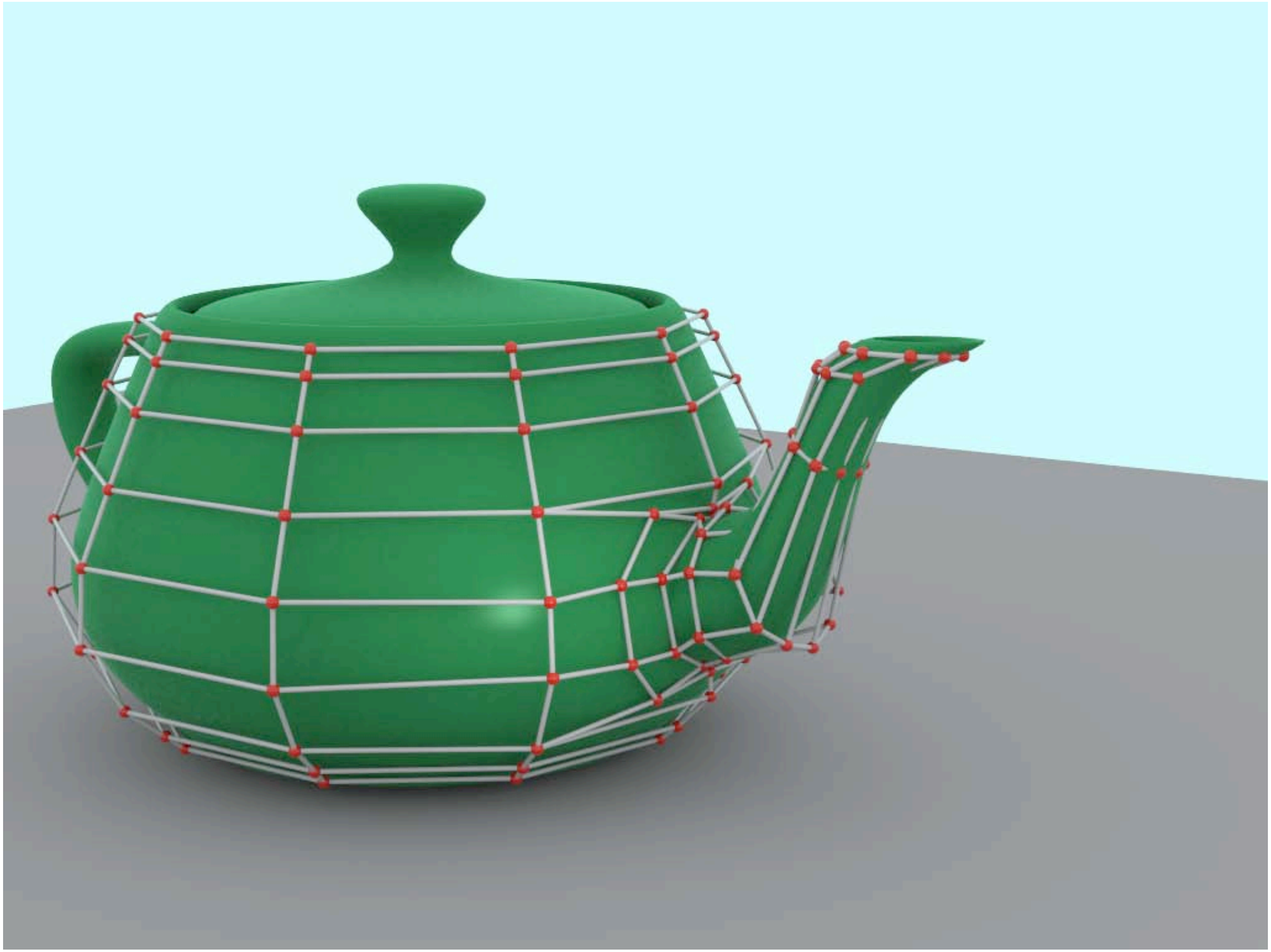
NURBS

T-Splines for Rhino

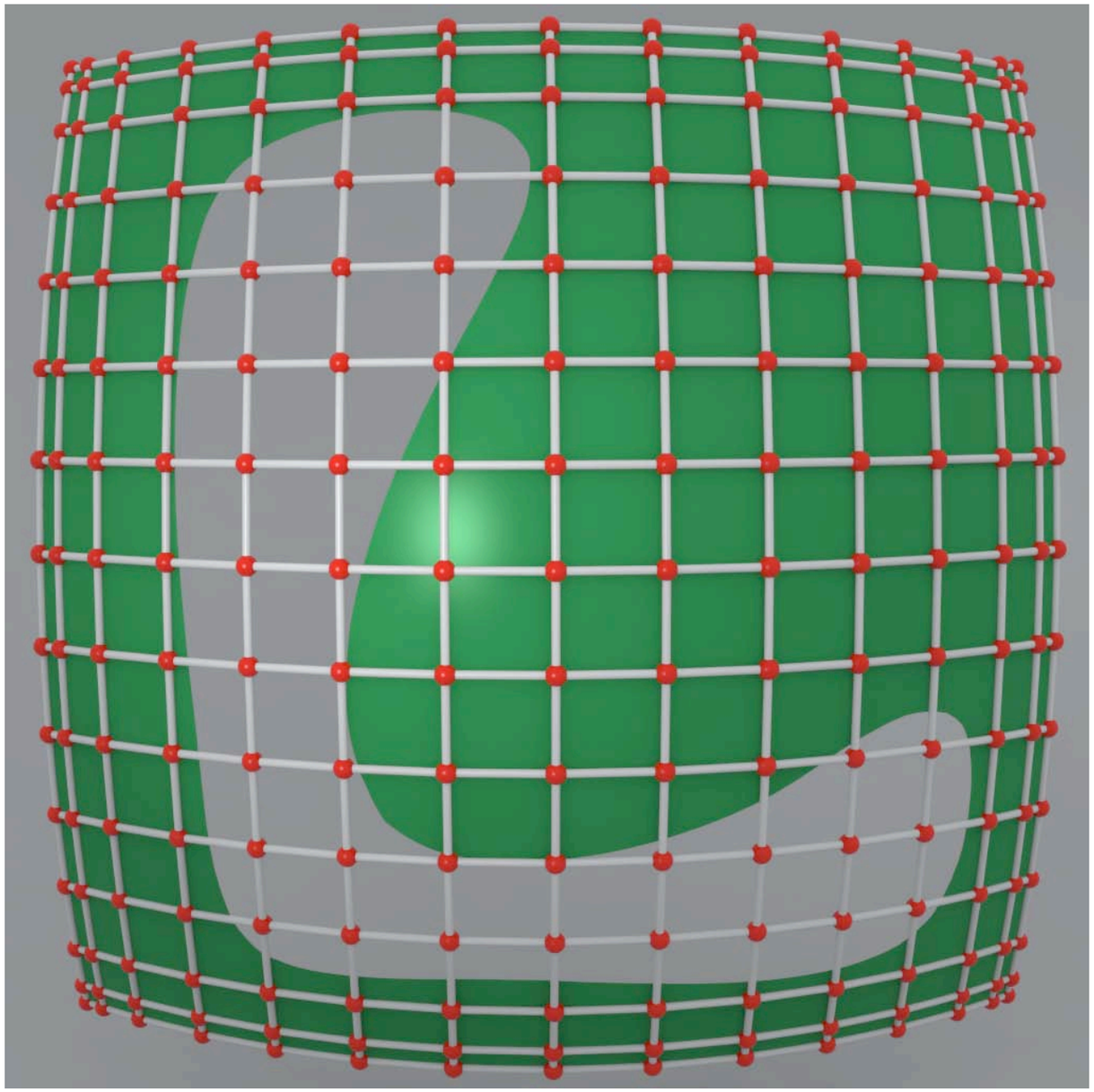
T-Spline Trimming Curve Conversion



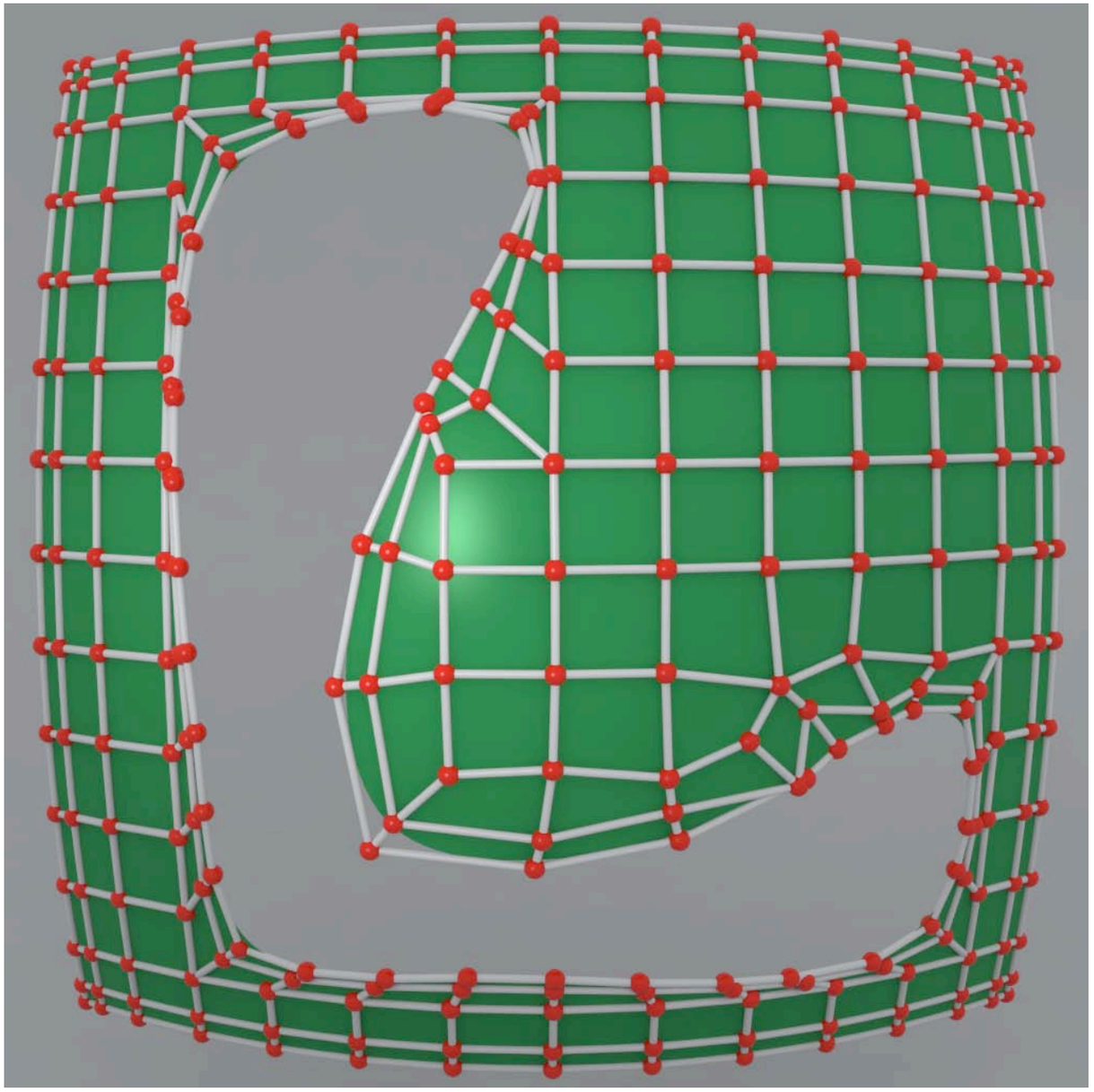


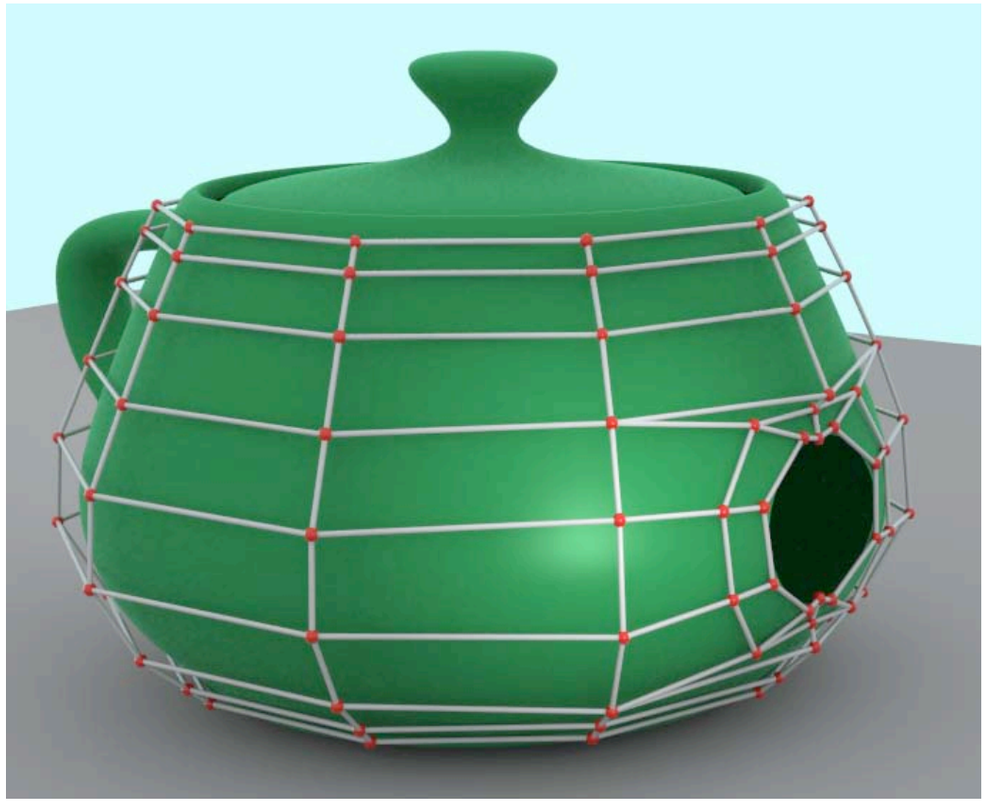


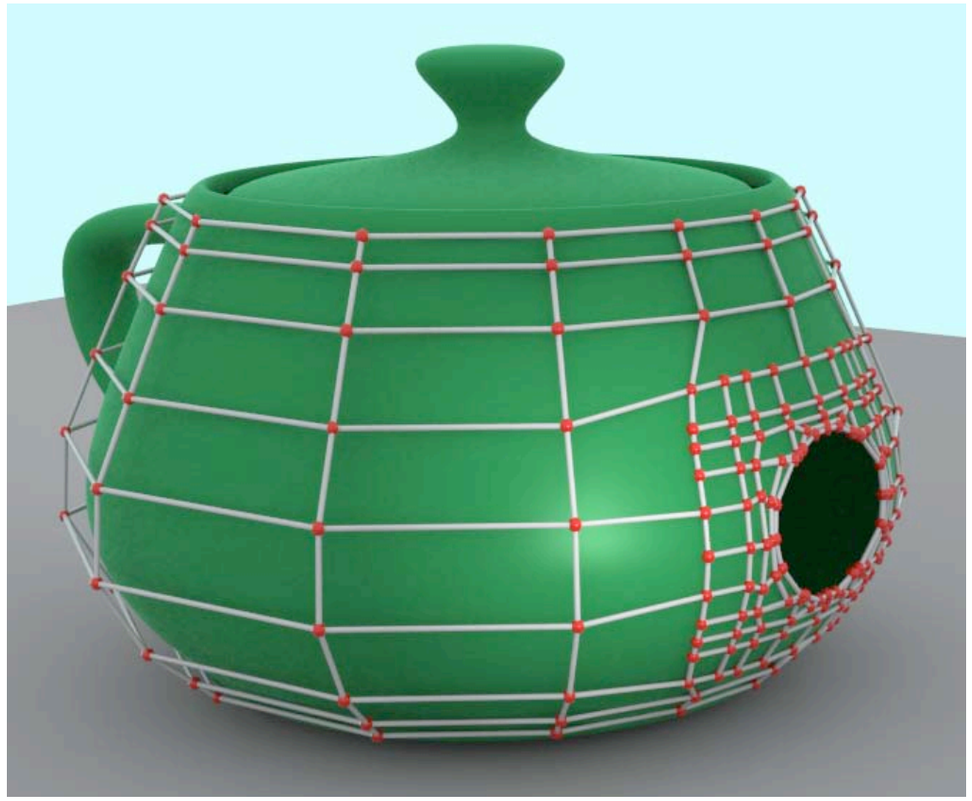
Trimmed NURBS

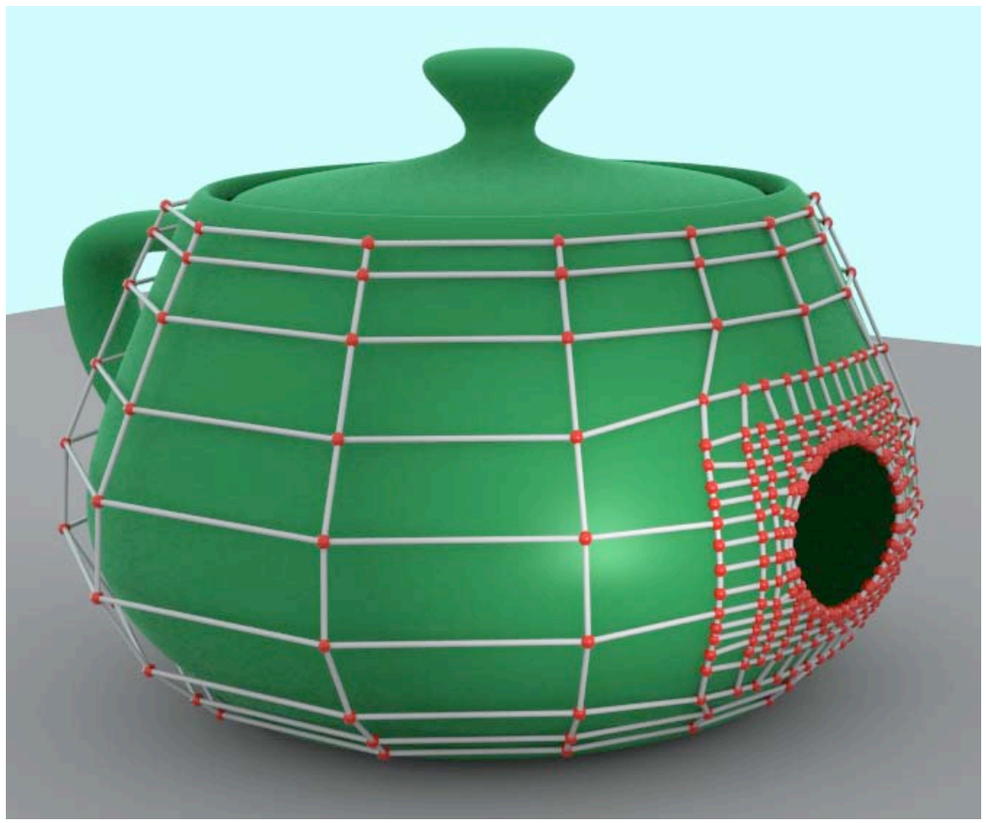


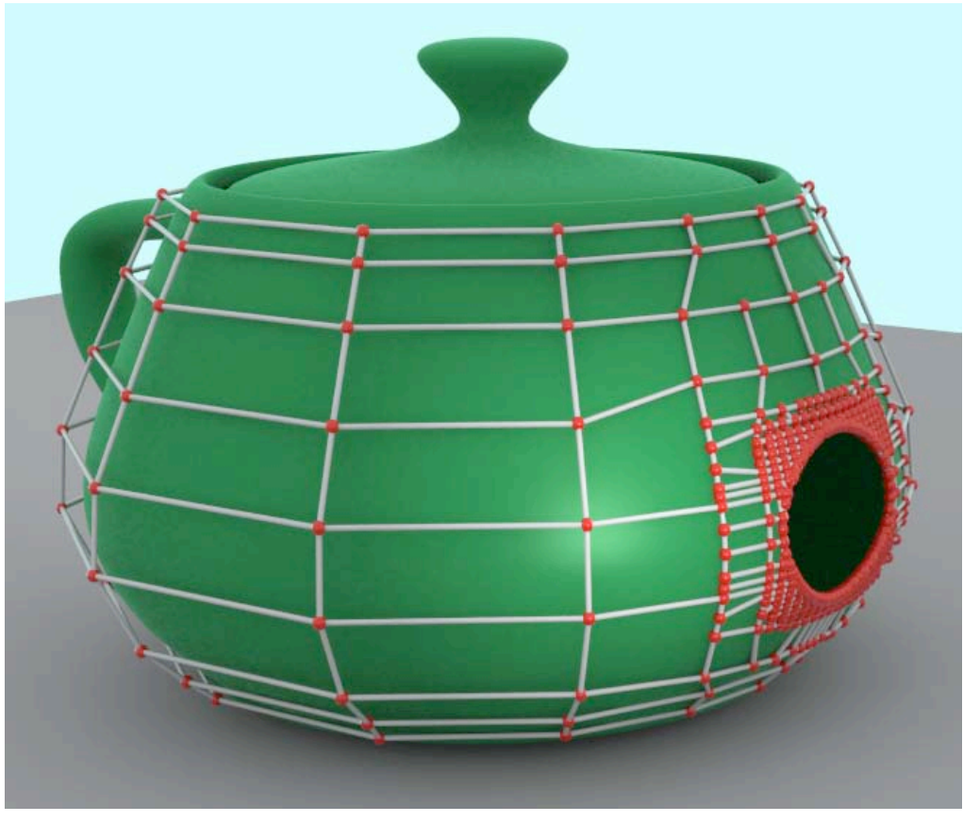
Untrimmed T-Spline

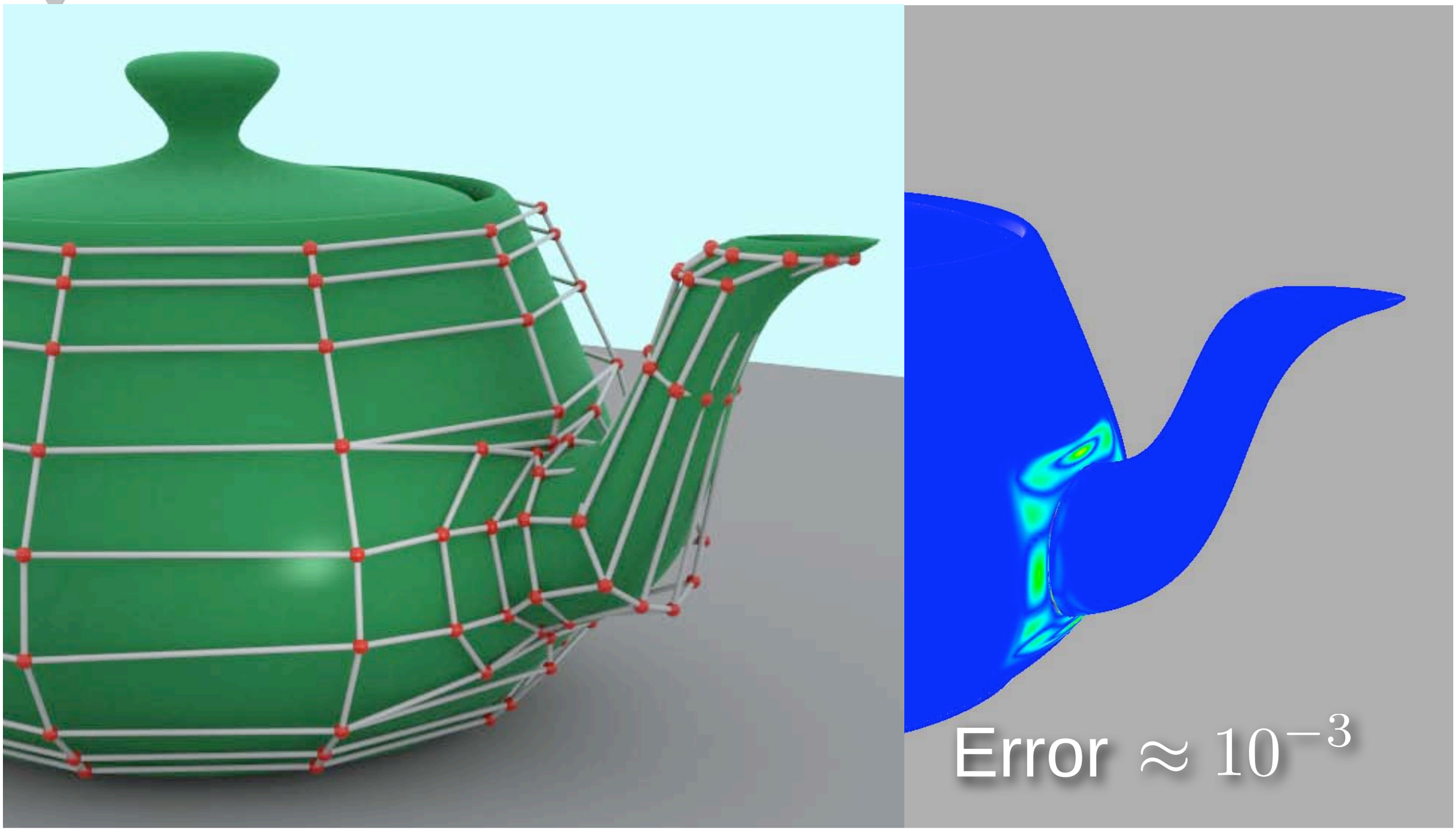








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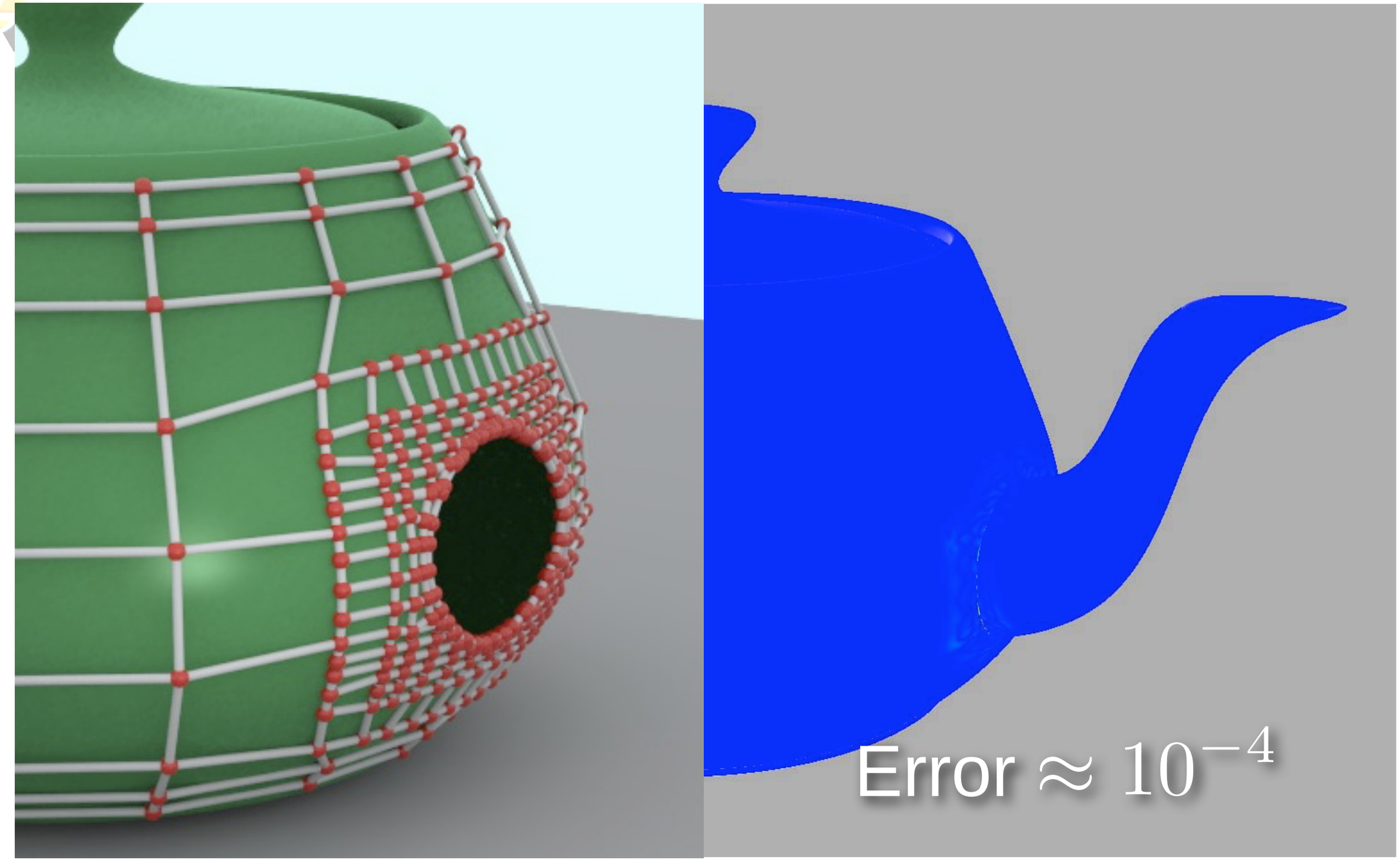
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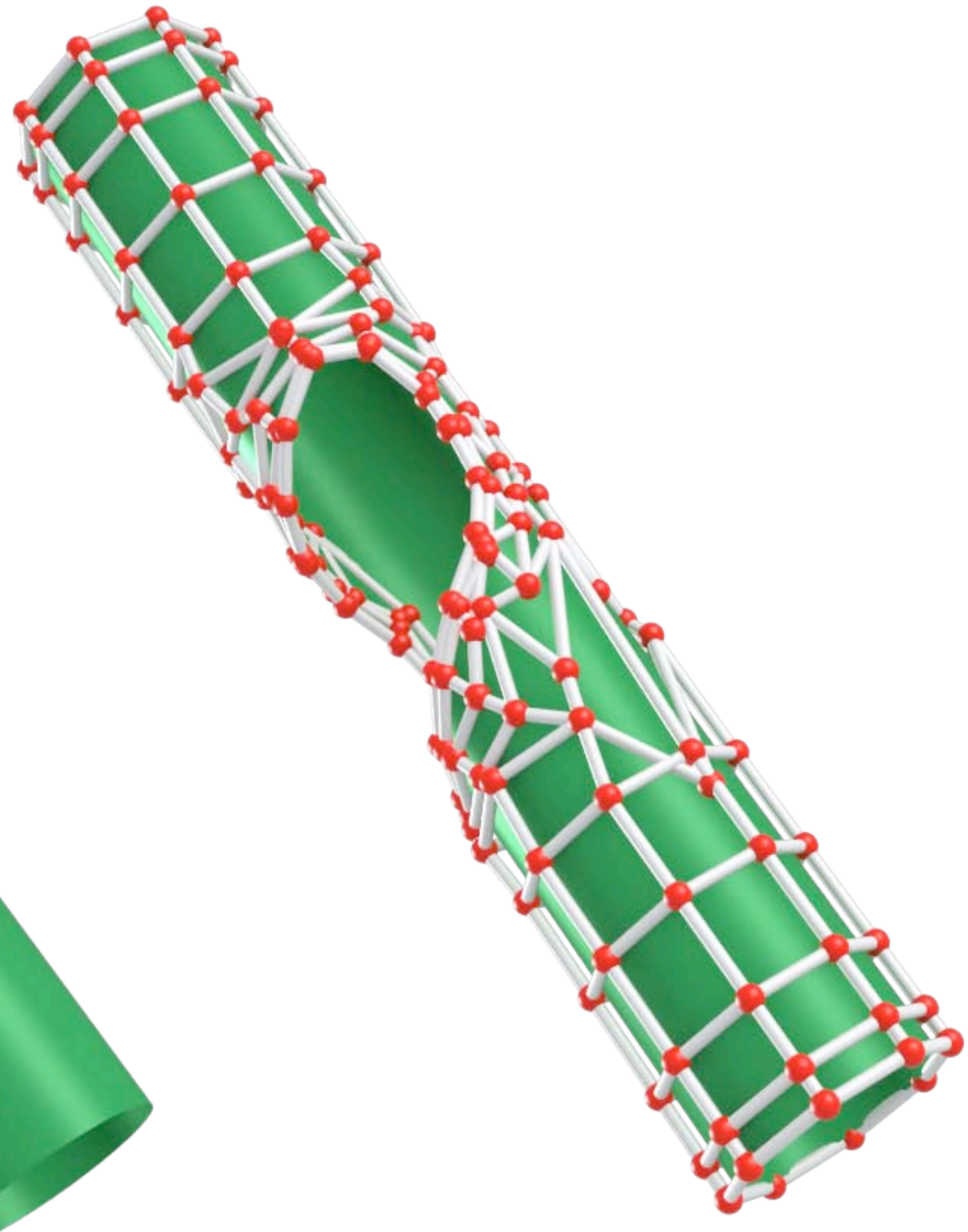
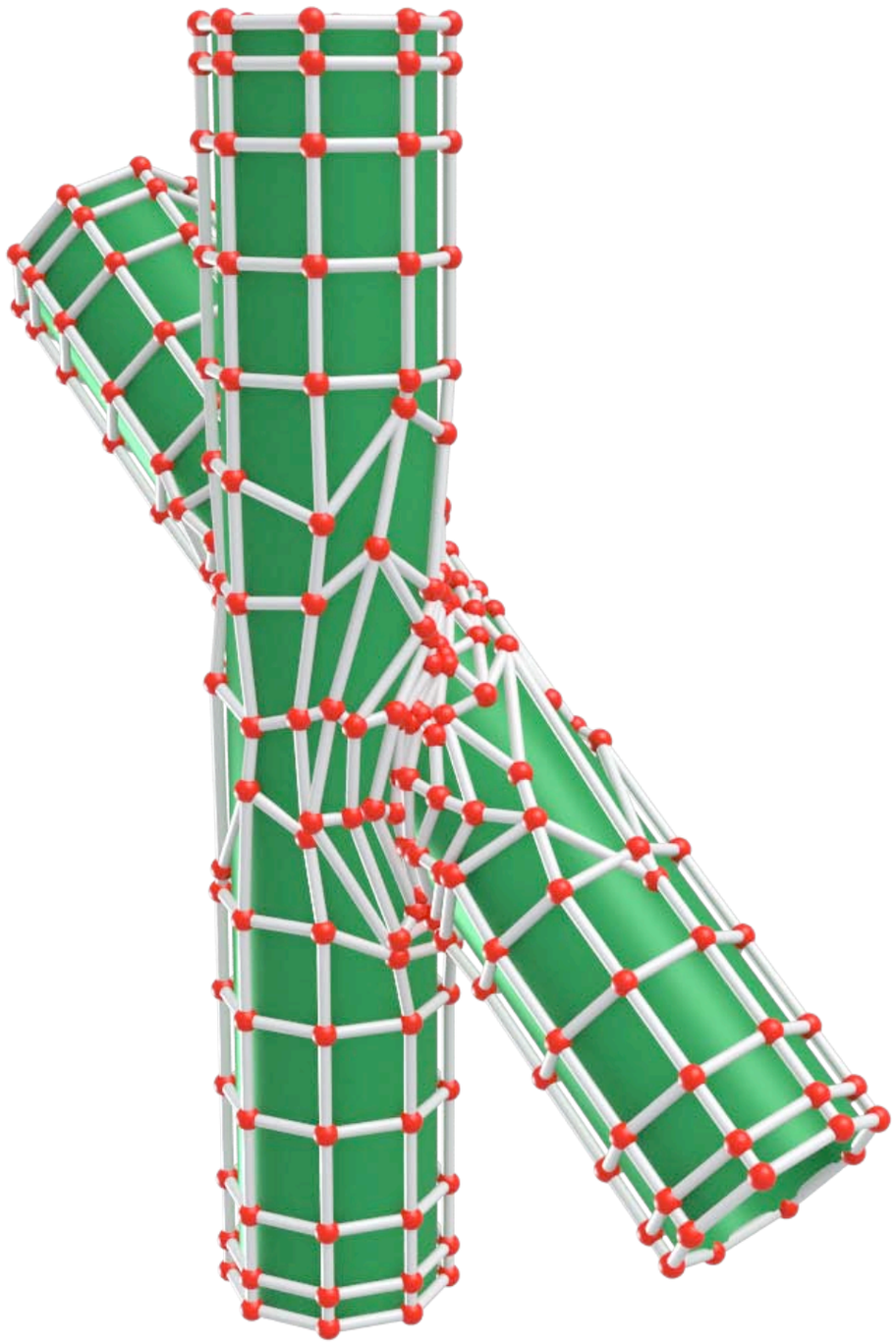
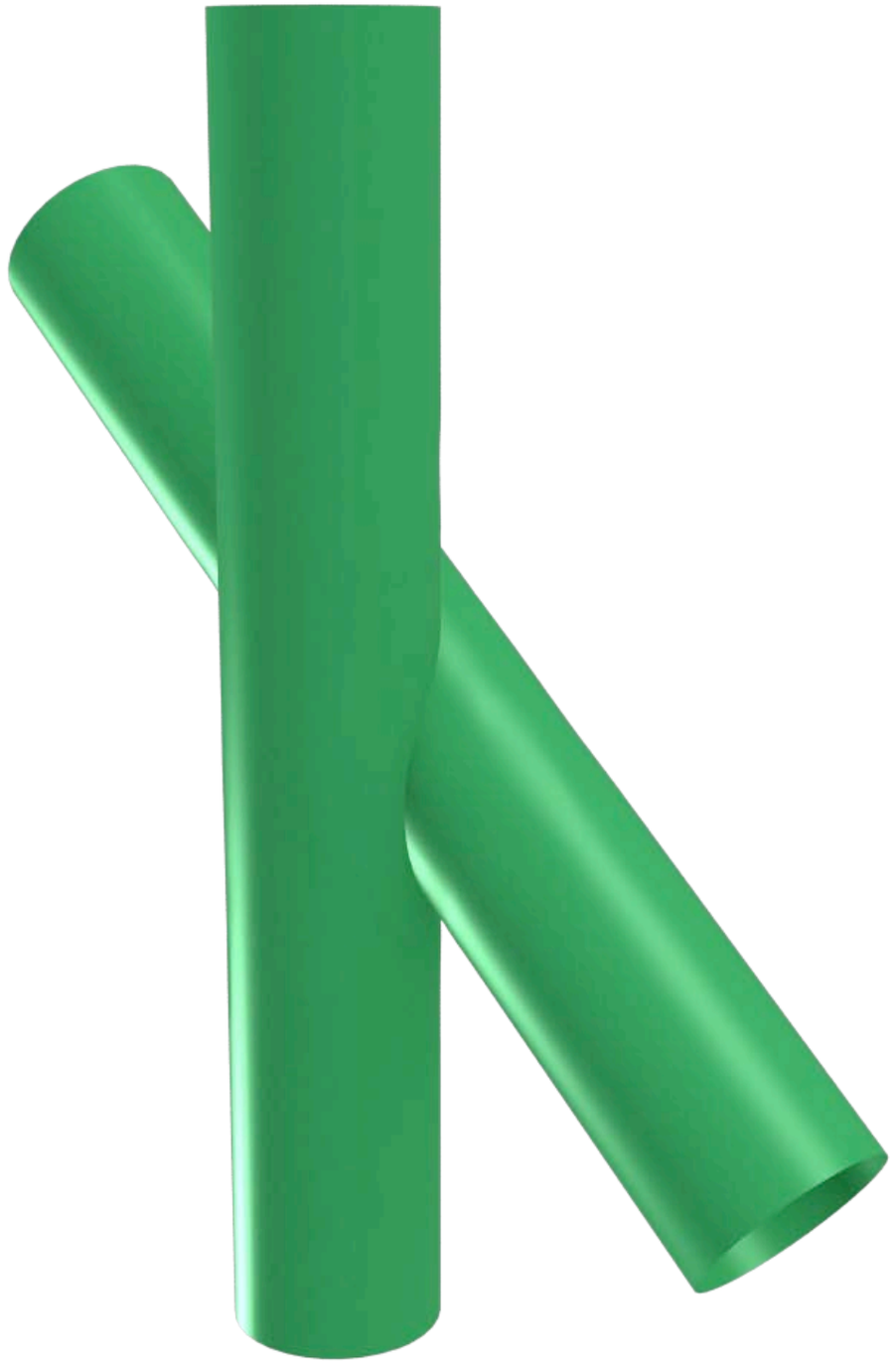
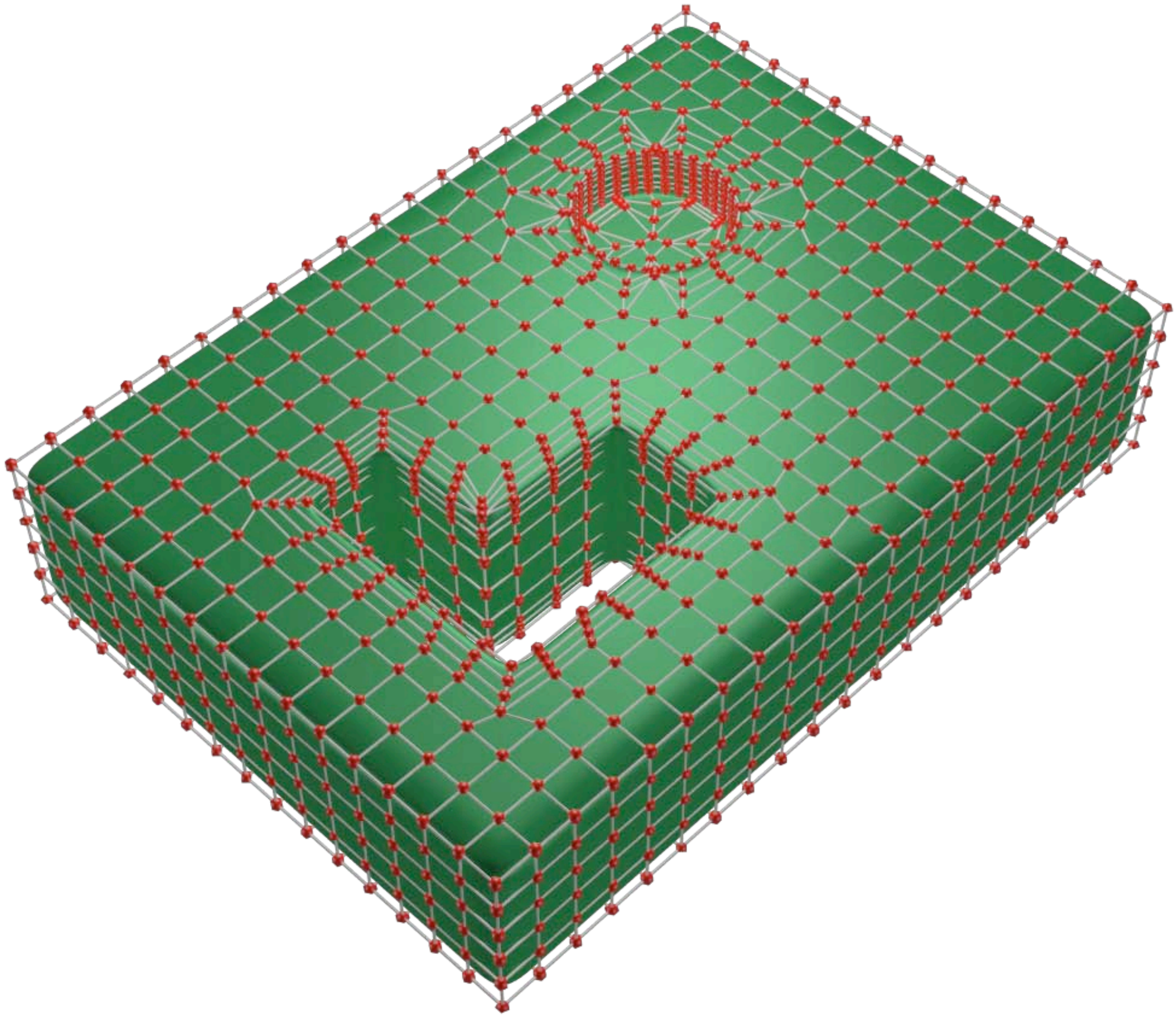
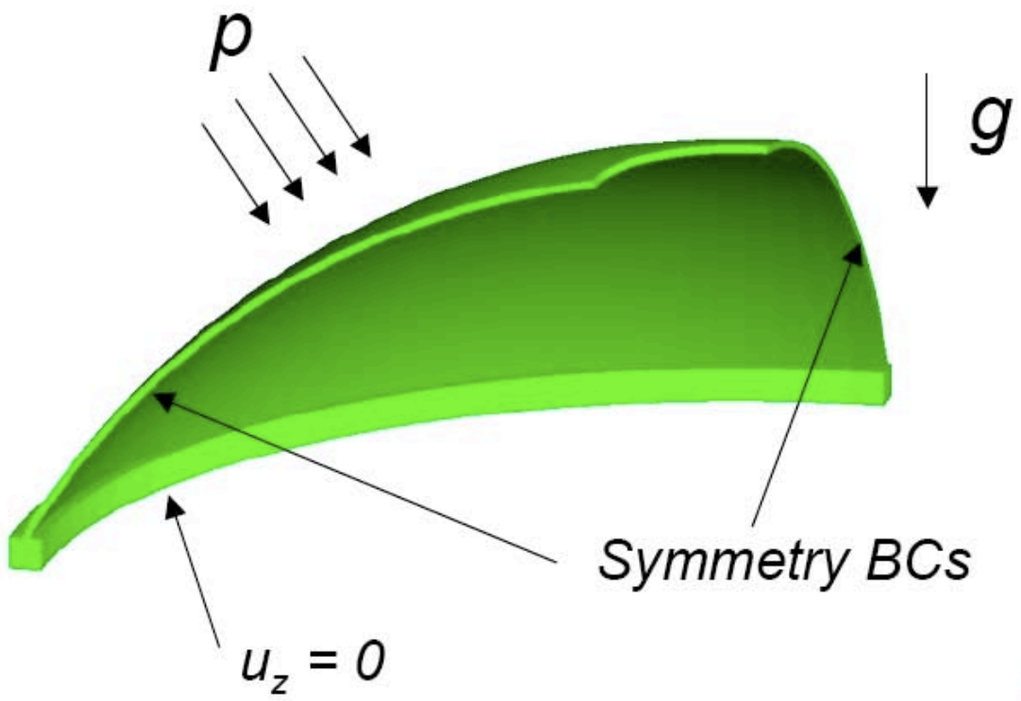








T-Splines and Isogeometric Analysis

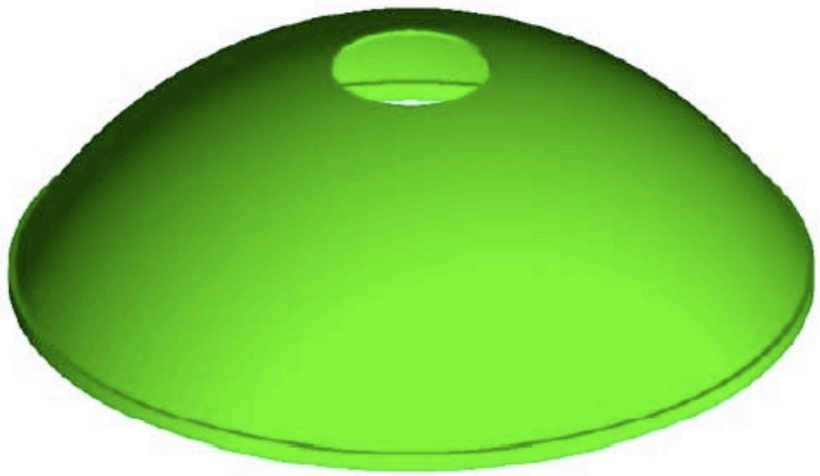


Computational domain

(from E. Rank *et al.*)

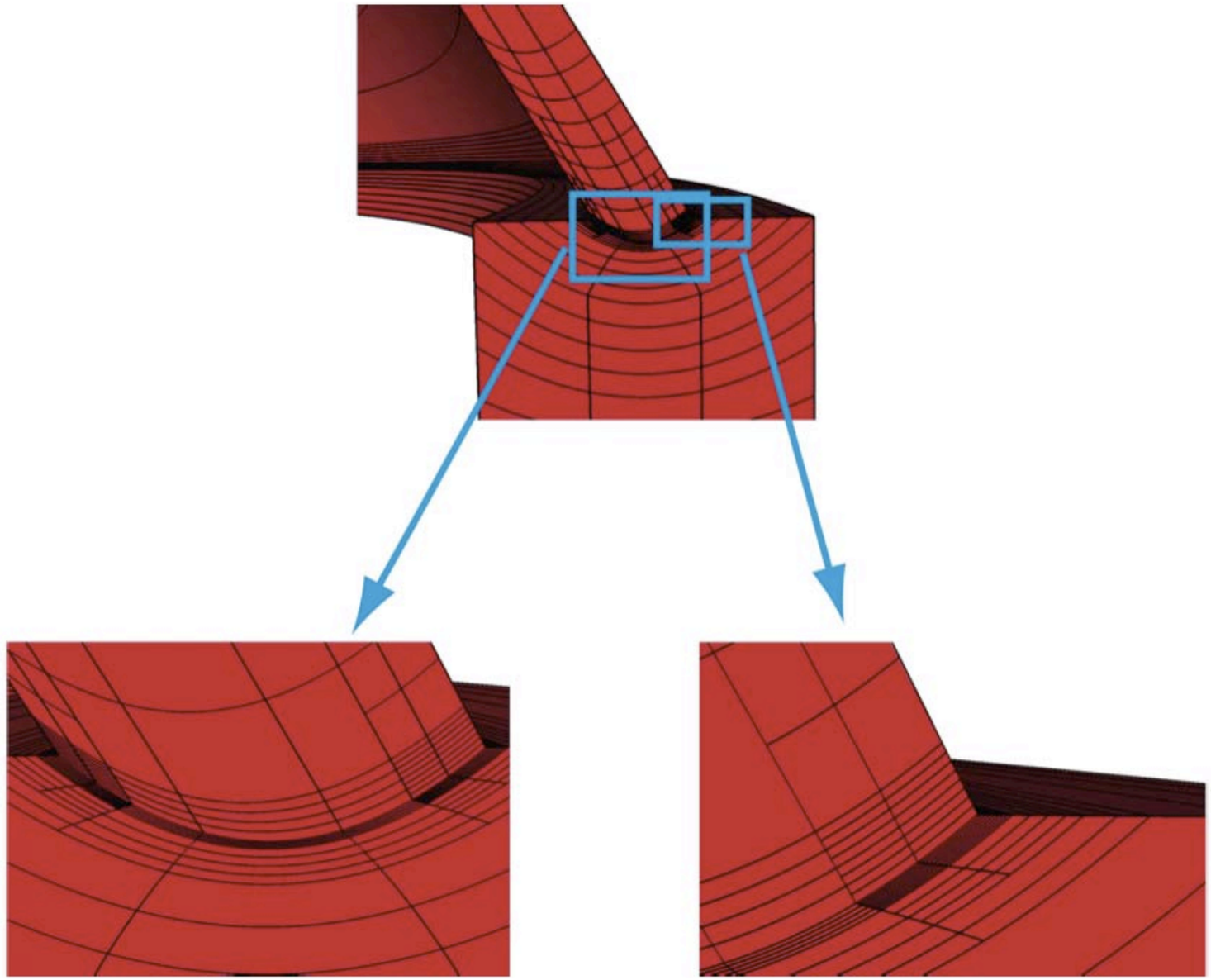
Loading:

- Gravity
- External pressure



Actual domain

T-Splines and Isogeometric Analysis



T-Splines and Isogeometric Analysis