

[www.picolay.de](http://www.picolay.de)

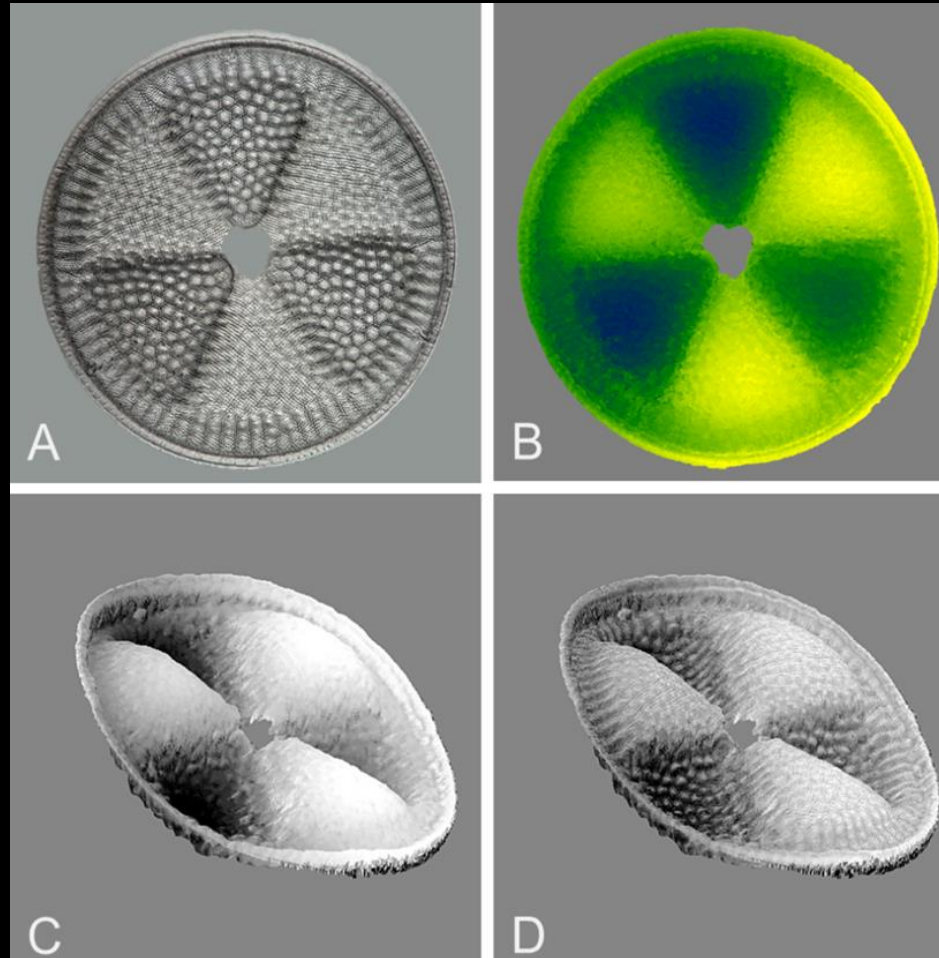


PICOLAY

- der offizielle Kanal -

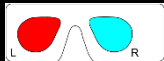
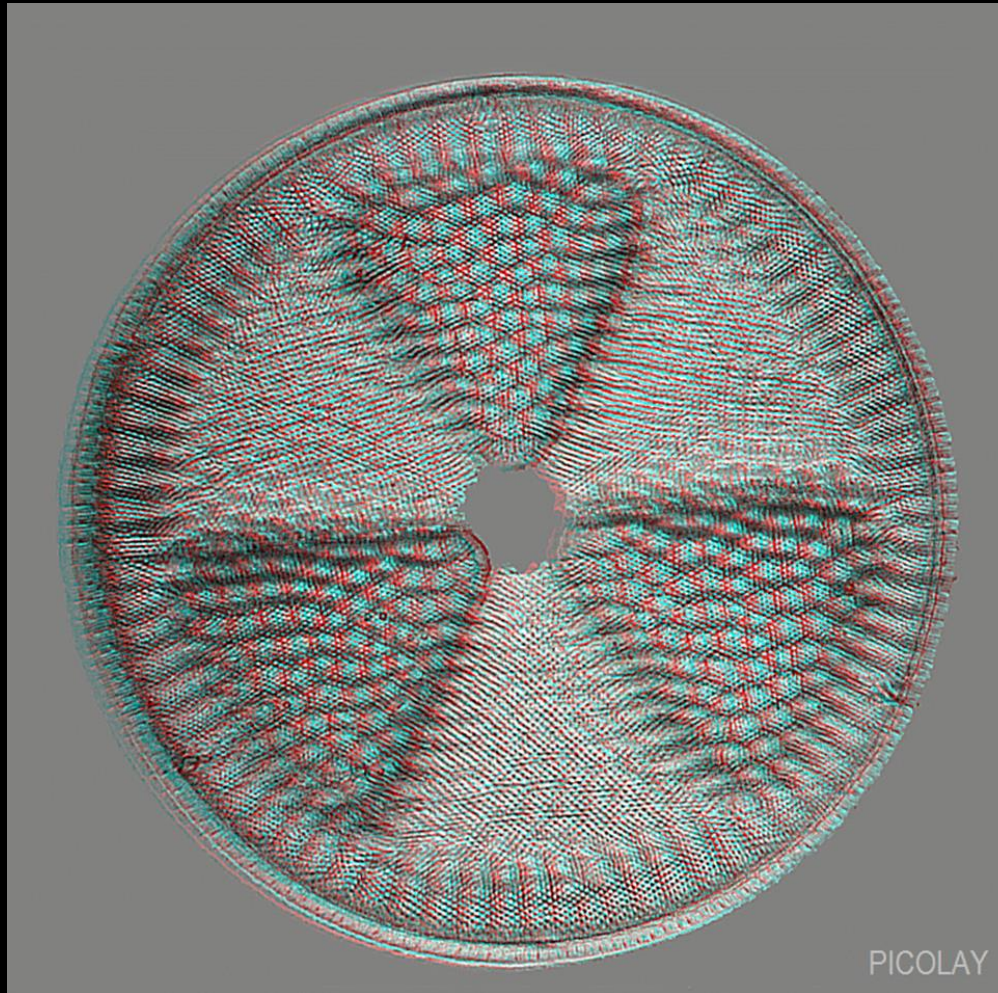
# Mikro- und Makro-3D mit PICOLAY

## - 3D-Parameter verstehen -



Online-Workshop von Heribert Cypionka

- Stapel mit 31 Bildern der Kieselalge *Actinopterychus*
- Stacking und Rotation siehe: YouTube [PICOLAY-ABC](#)



- Thema: Was bedeuten die verschiedenen 3D-Parameter und wie kann man sie nutzen?

# - Stacking-Ergebnis: Scharfes Bild + Tiefenkarte

PICOLAY (64 bit) Version: 2020-07-03 (c) Heribert Cypionka

File Image list Stack operations Options Help

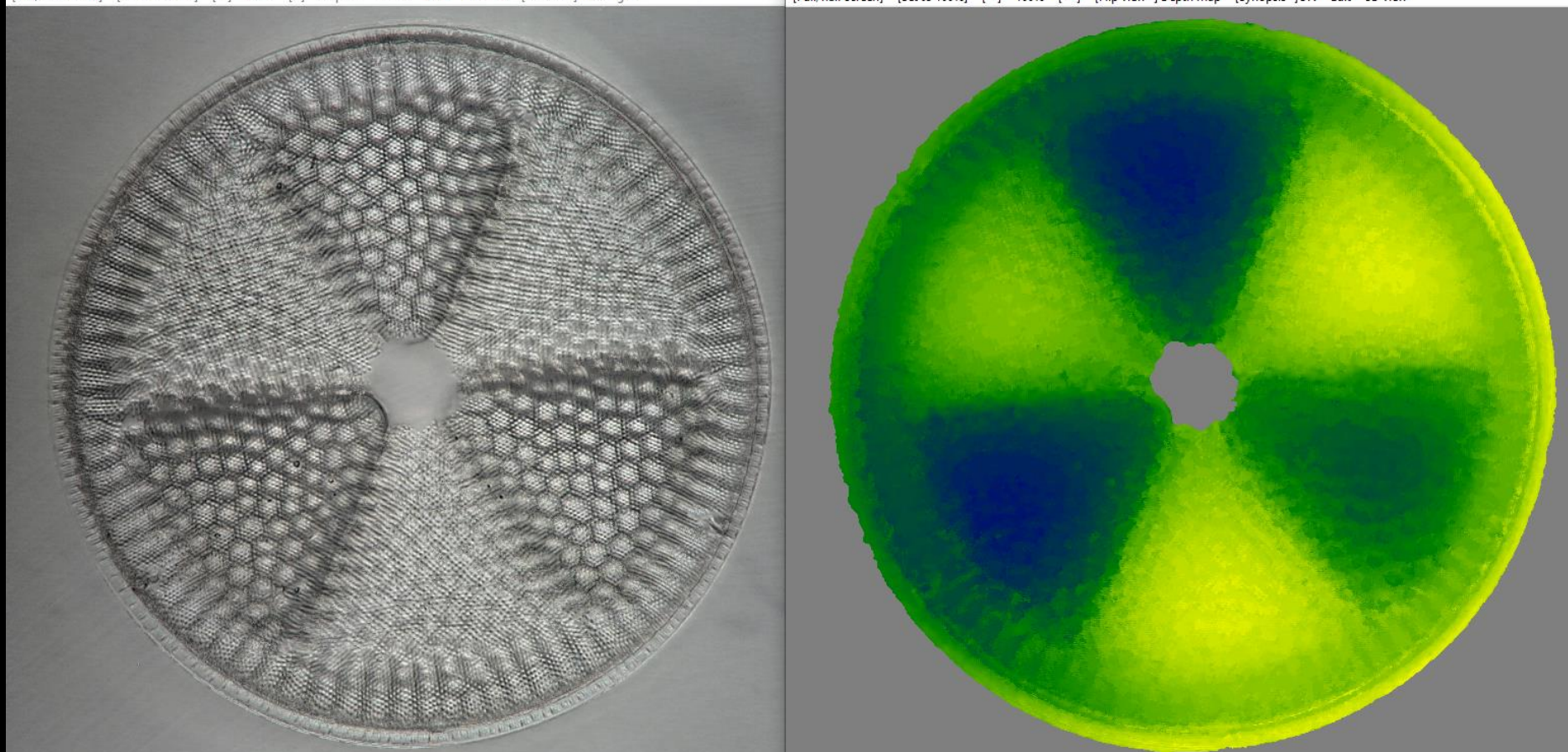
31/2 [X][L] files in: D:\Workshop\Actinoplychus\  
pystkd\_sup10\_pa-2\_fil2.bmp  
pymap\_sup10\_pa-2\_fil2.bmp  
Actino3\_1250x0003.bmp  
Actino3\_1250x0004.bmp  
Actino3\_1250x0005.bmp  
Actino3\_1250x0006.bmp  
Actino3\_1250x0007.bmp  
Actino3\_1250x0008.bmp  
Actino3\_1250x0009.bmp  
Actino3\_1250x0010.bmp  
Actino3\_1250x0011.bmp  
Actino3\_1250x0012.bmp

**Set stacking parameters**  
Noise suppression (0...30) **10**  
Narrow or widen patches (-/+10) **-2**  
Filter: Smart  Fixed (1...10) **2**  
Prefer high  low frames  
Align  Test 4 filter settings   
Auto-enhance   
Save depth map  Back Go

**Klick!**

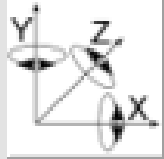
P I C O L A Y Image window X/Y: 748/441 R/G/B: 136/138/135  
[Full/half screen] [Fit to window] [-] 100% [+] <- prev. next-> Edit Enhance [Mouse =] Rectangle

PICOLAY: Depth map  
[Full/half screen] [Set to 100%] [-] 100% [+] [Flip view=] Depth map [Synopsis=]ON Edit 3D view



# 3D - Parameter

**PICOLAY 3D display**



Length of Z axis (% of image height)

Enlarge pixel depth

Perspective (%)

Projection based on depth map

Hologram stacking

Images to be generated

Stereo    Viewing angle  °

Relief    Distance

Background

Average     Colour

3-D rotation parameters

(+/- 360°)     Stepwise rotation around axis:

Red-cyan     [RLR]     [LRL]

[R]+[L]     Rocking gif

[RL]     [LR]     [RL]  
[LR]

X

Y

Z

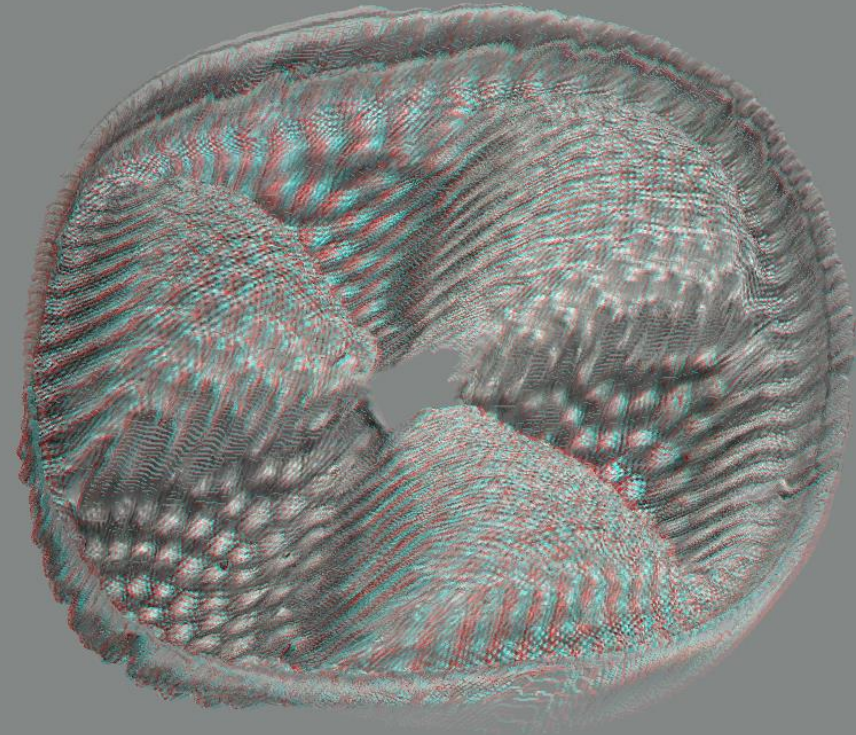
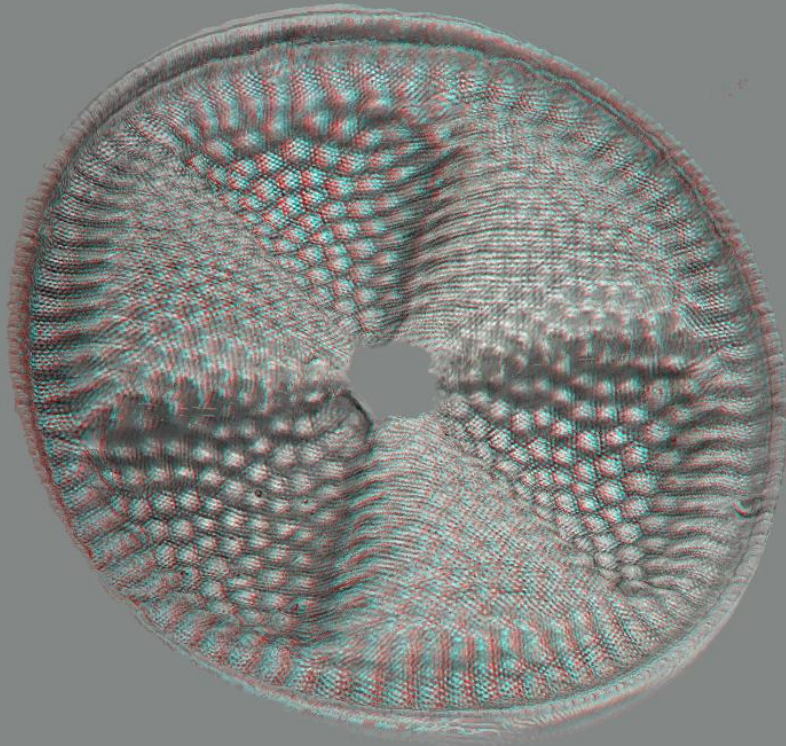
Length of Z axis: Bildtiefe im Vergleich zur Höhe in %

Pixel depth: Erhöht die Tiefe der Pixel, schließt Lücken

Perspective: Vergrößert nahe Strukturen, verkleinert ferne

Tiefenkarte → Projektion (Hologramm-Stacking später...)

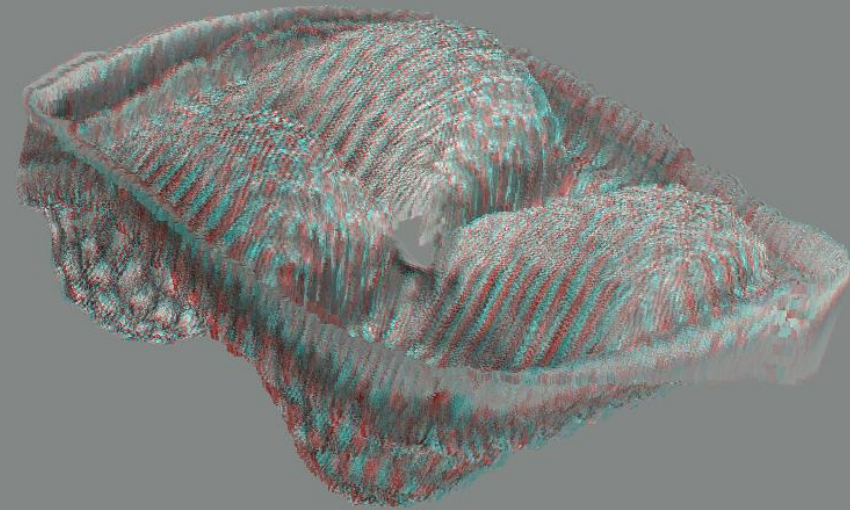
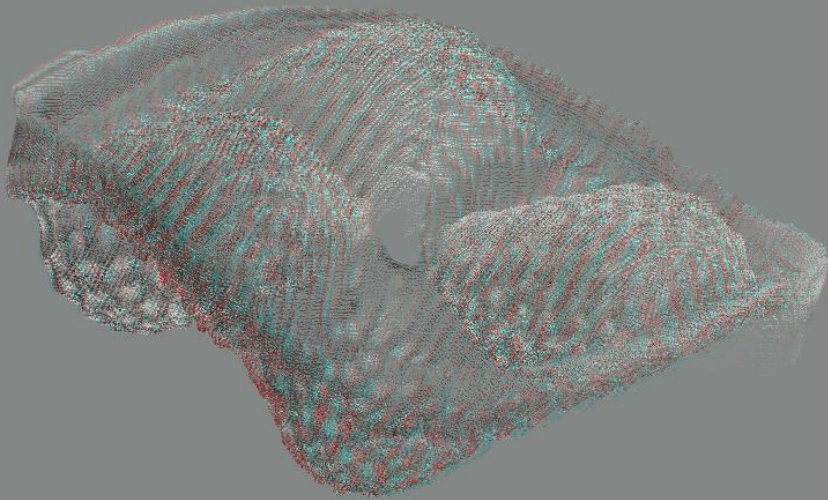
# Length of Z axis: Bildtiefe im Vergleich zur Höhe in %



Length of Z axis: 25 %

75 %

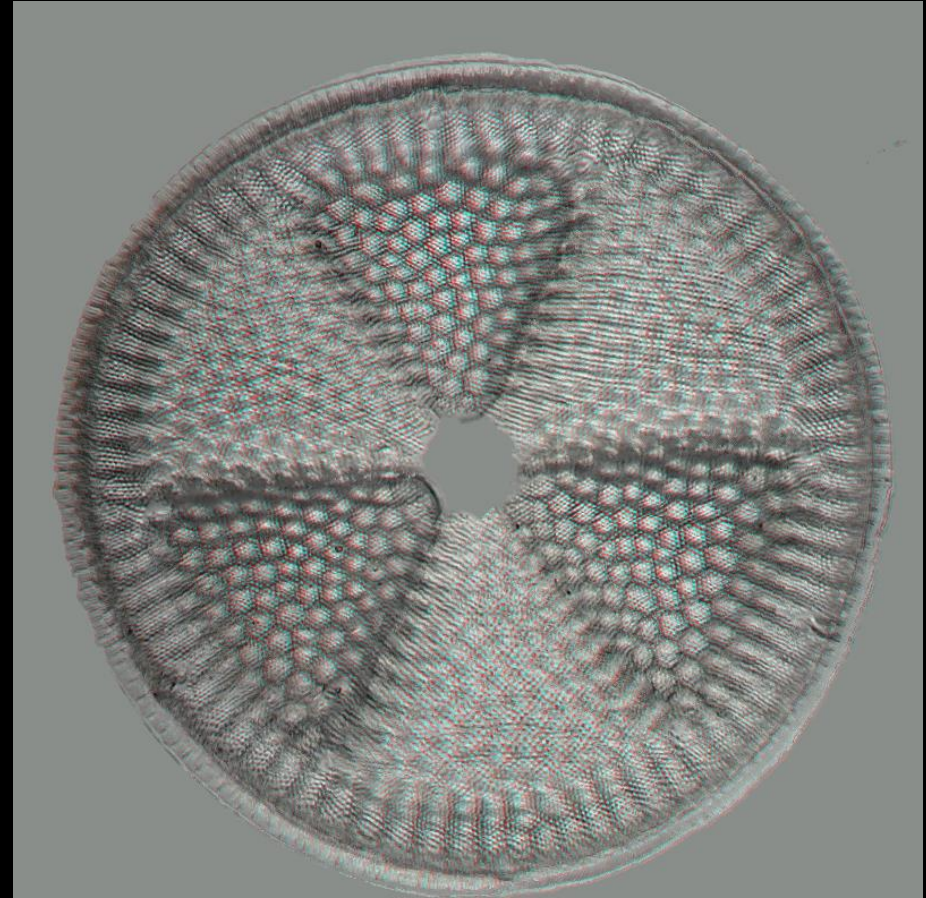
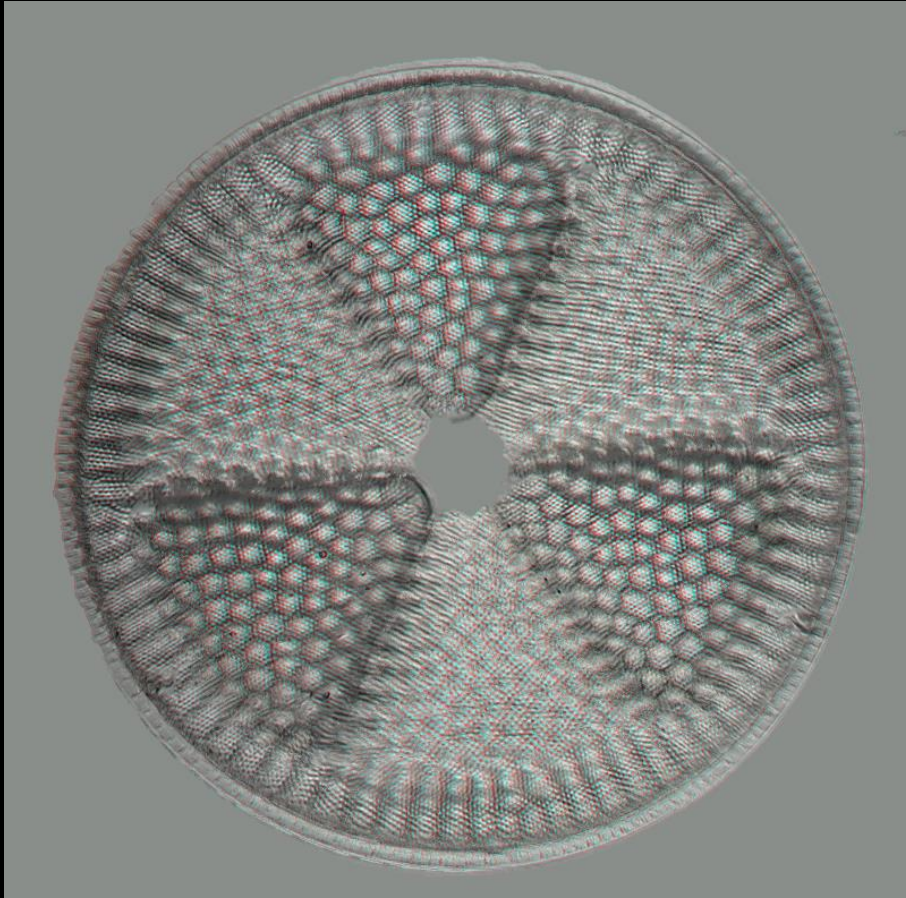
# Pixel depth: Erhöht die Tiefe der Pixel, schließt Lücken



Pixel depth: +0 (=1)

+3 (=4)

Perspective: Vergrößert nahe Strukturen, verkleinert ferne



Perspective: 0 %

20 %



# 3D - Parameter-Fenster

PICOLAY 3D display

Length of Z axis (% of image height)

Enlarge pixel depth

Perspective (%)

Projection based on depth map

Hologram stacking

Back

Images to be generated

Stereo Viewing angle  °

Relief Distance

Red-cyan  [RLR]  [LRL]

[R]+[L]  Rocking gif

[RL]  [LR]  [RL]  
[LR]

Background

Average  Colour

3-D rotation parameters

(+/- 360°)  Stepwise rotation around axis:

X

Y

Z

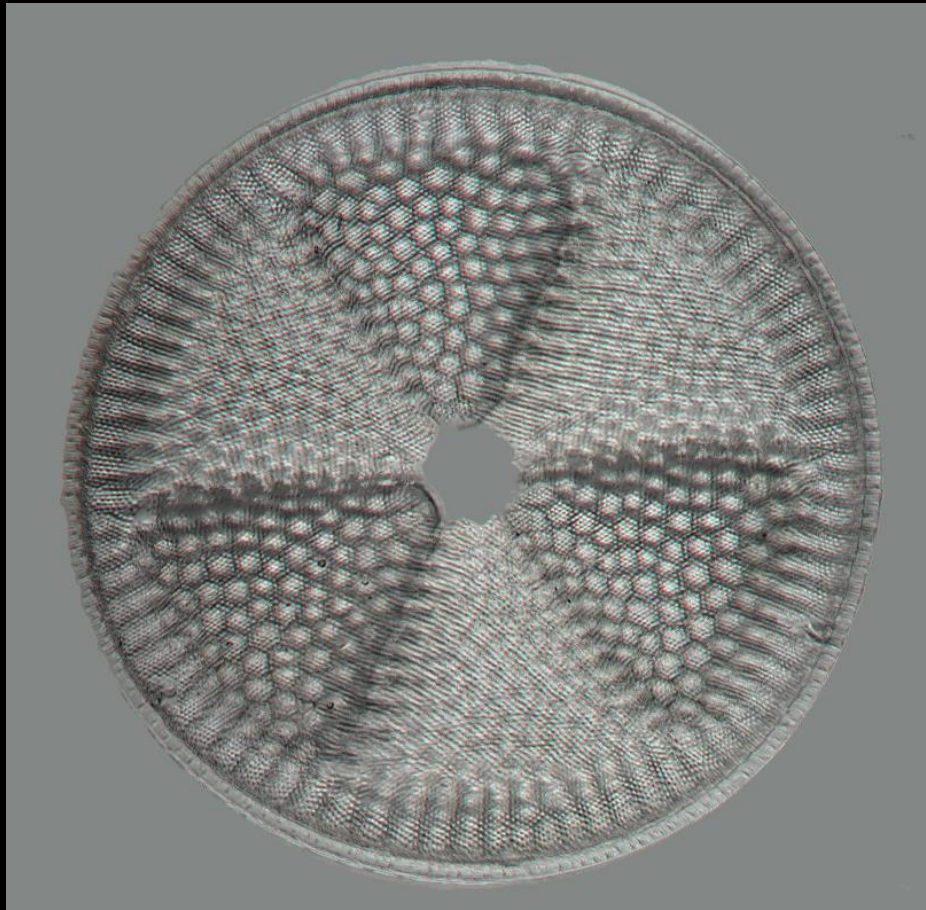
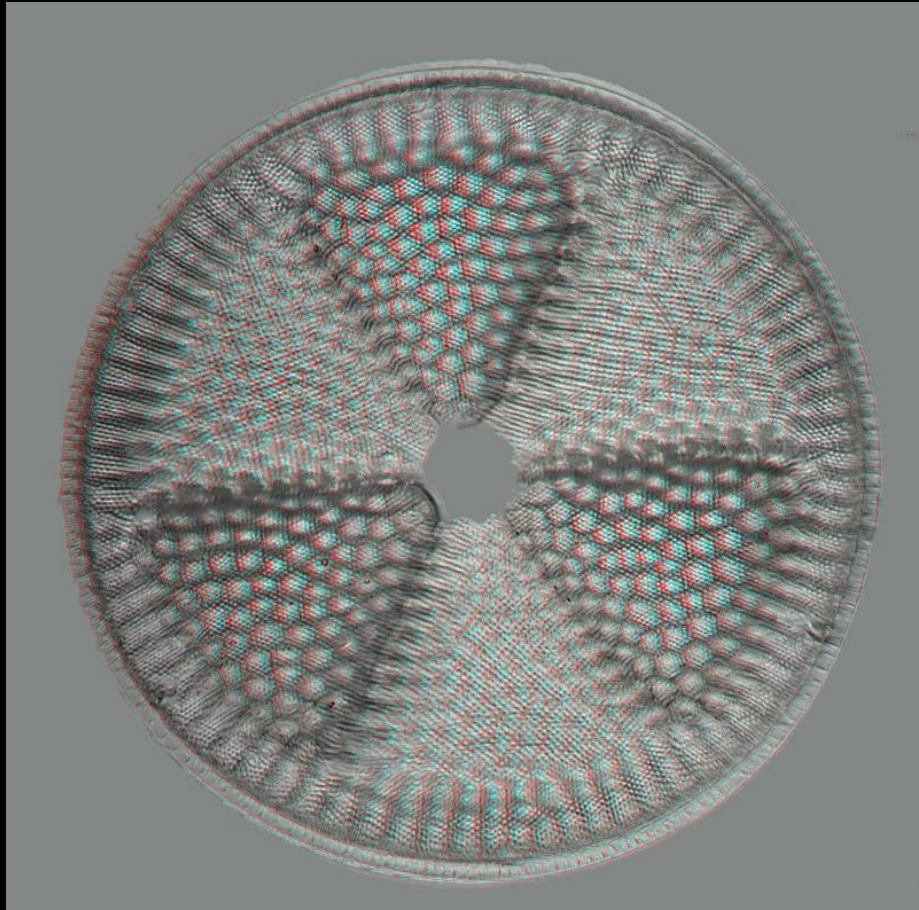
**Stereo:** Erzeugt 2 Bilder für linkes und rechtes Auge

**Viewing angle:** Augenwinkel, nah groß, fern klein

**Relief:** wirft Licht von links oben und Schatten

**Distance:** Platziert Objekt nach hinten oder vorne

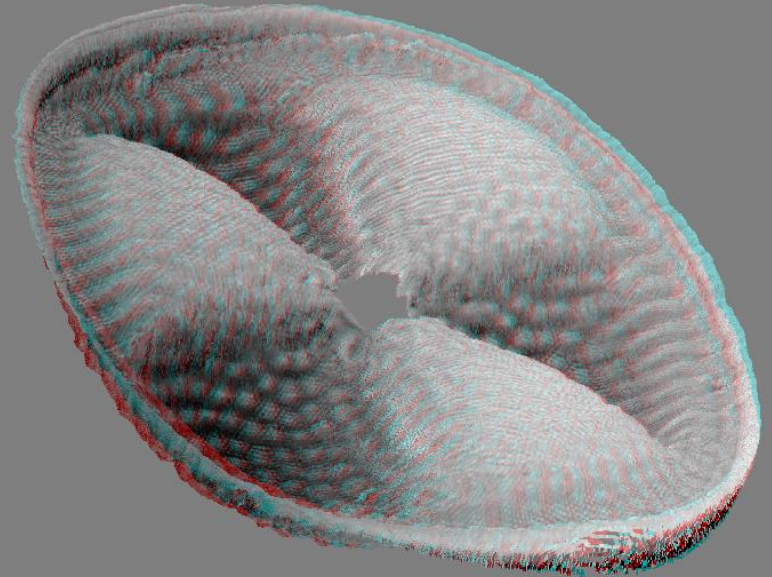
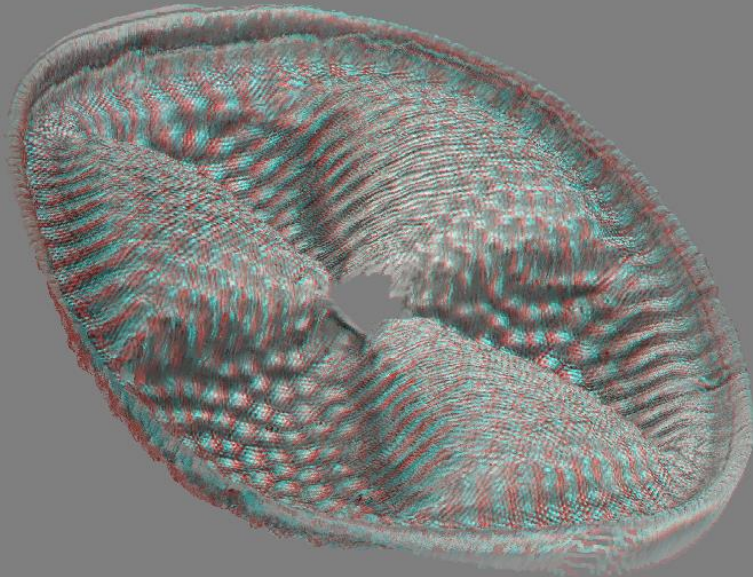
Viewing angle: Augenwinkel, nah groß, fern klein



Viewing angle:  $5^\circ$

$1^\circ$

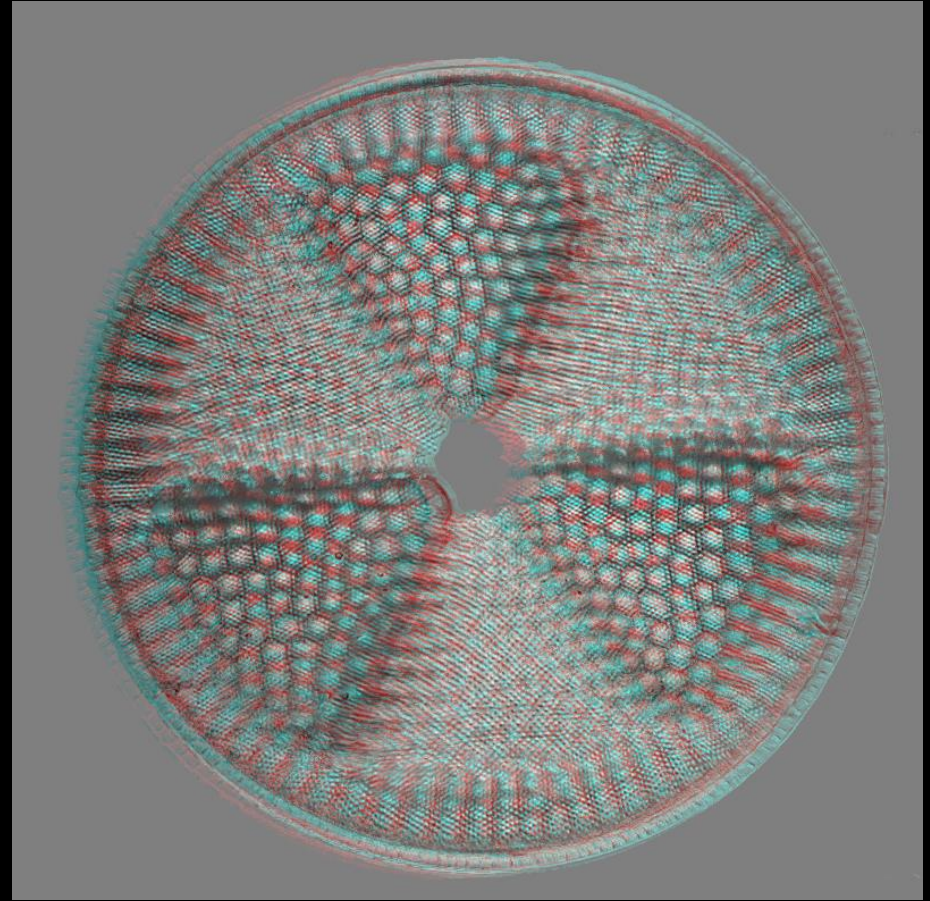
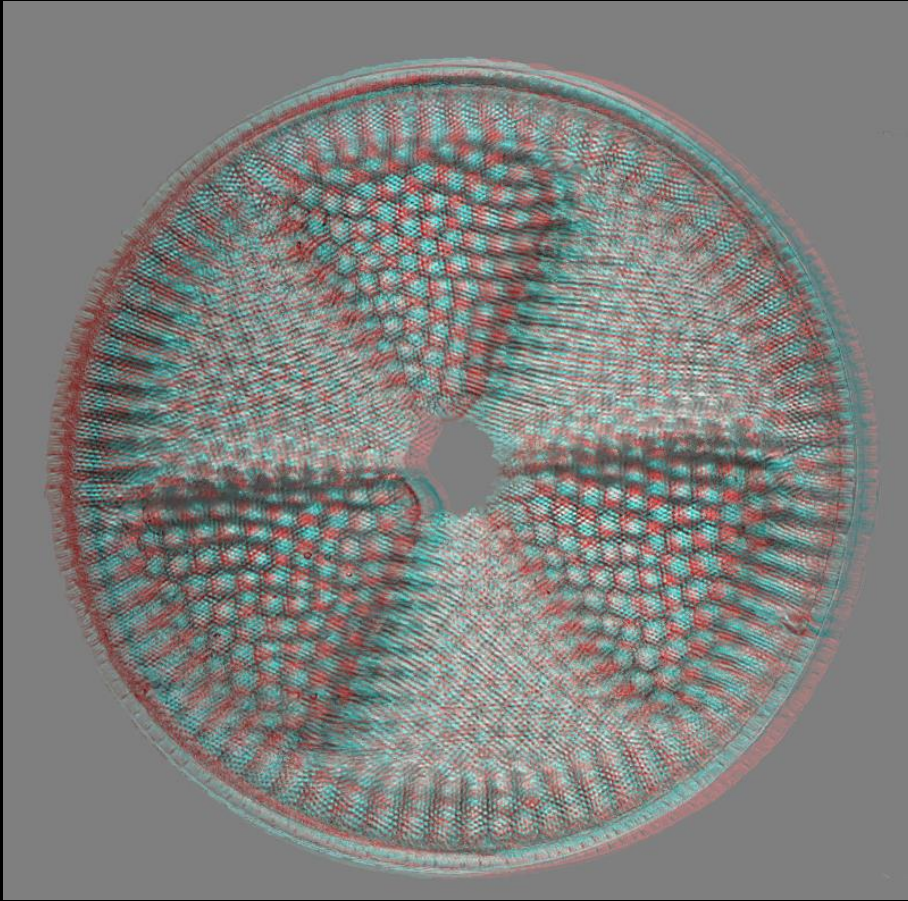
# Relief: wirft Licht von links oben und Schatten



Relief: ohne

mit Schatten

# Distance: Platziert Objekt nach hinten oder vorne



Distance: -10

+10

(Anaglyphenbrille auch mal umdrehen!)

# 3D - Parameter-Fenster

PICOLAY 3D display

Length of Z axis (% of image height)

Enlarge pixel depth

Perspective (%)

Projection based on depth map

Hologram stacking

Back

Images to be generated

Stereo  Relief  Distance

Viewing angle  °

Red-cyan  [RLR]  [LRL]

[R]+[L]  Rocking gif

[RL]  [LR]  [RL][LR]

Background

Average  Colour

3-D rotation parameters

(+/- 360°)  Stepwise rotation around axis:

X

Y

Z

Red-Cyan: Rot-Cyan-Anaglyphenbild

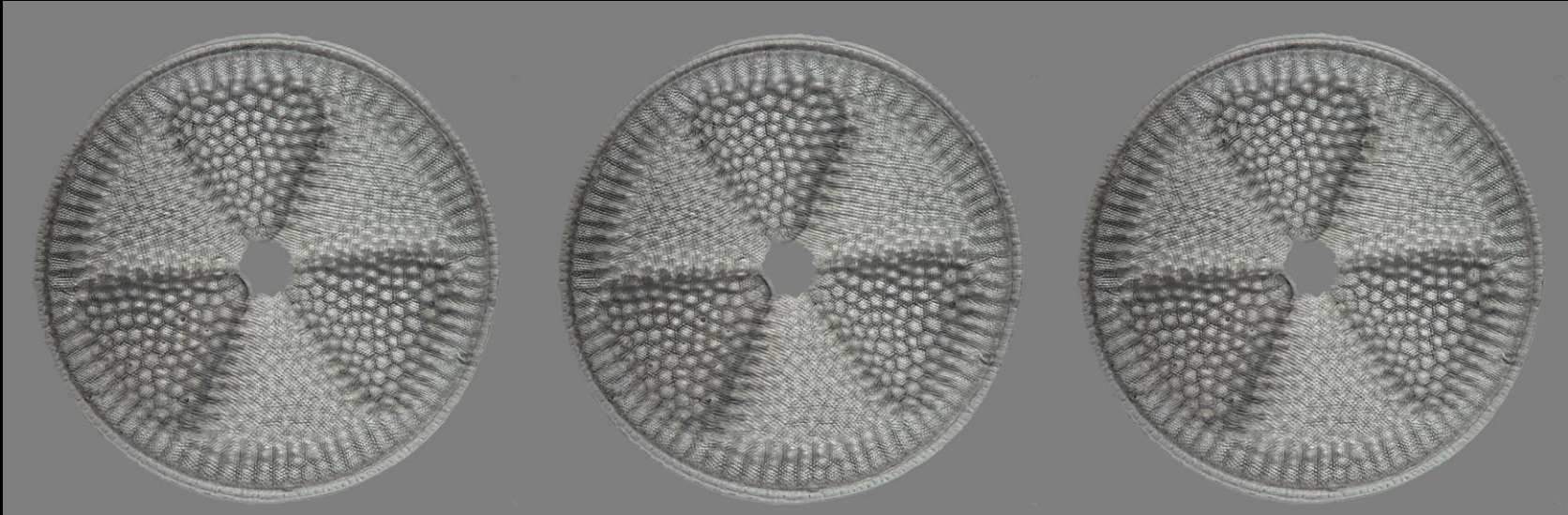
RLR, LRL, RL etc.: Seite an Seite montierte Bilder

[R]+[L]: Rechtes und linkes Bild getrennt (z.B. -> mpo-Datei!)

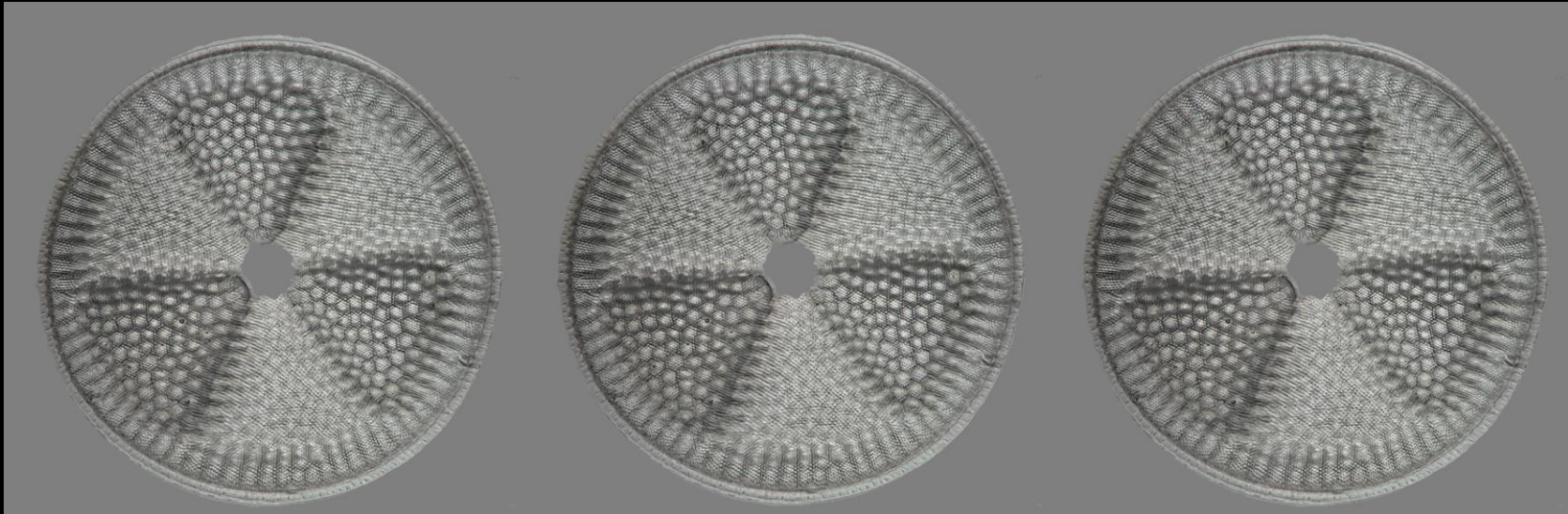
Rocking gif: Wackelbild, linkes-rechtes-linkes-rechtes...

# RLR, LRL, RL etc.: Seite an Seite montierte Bilder

RLR

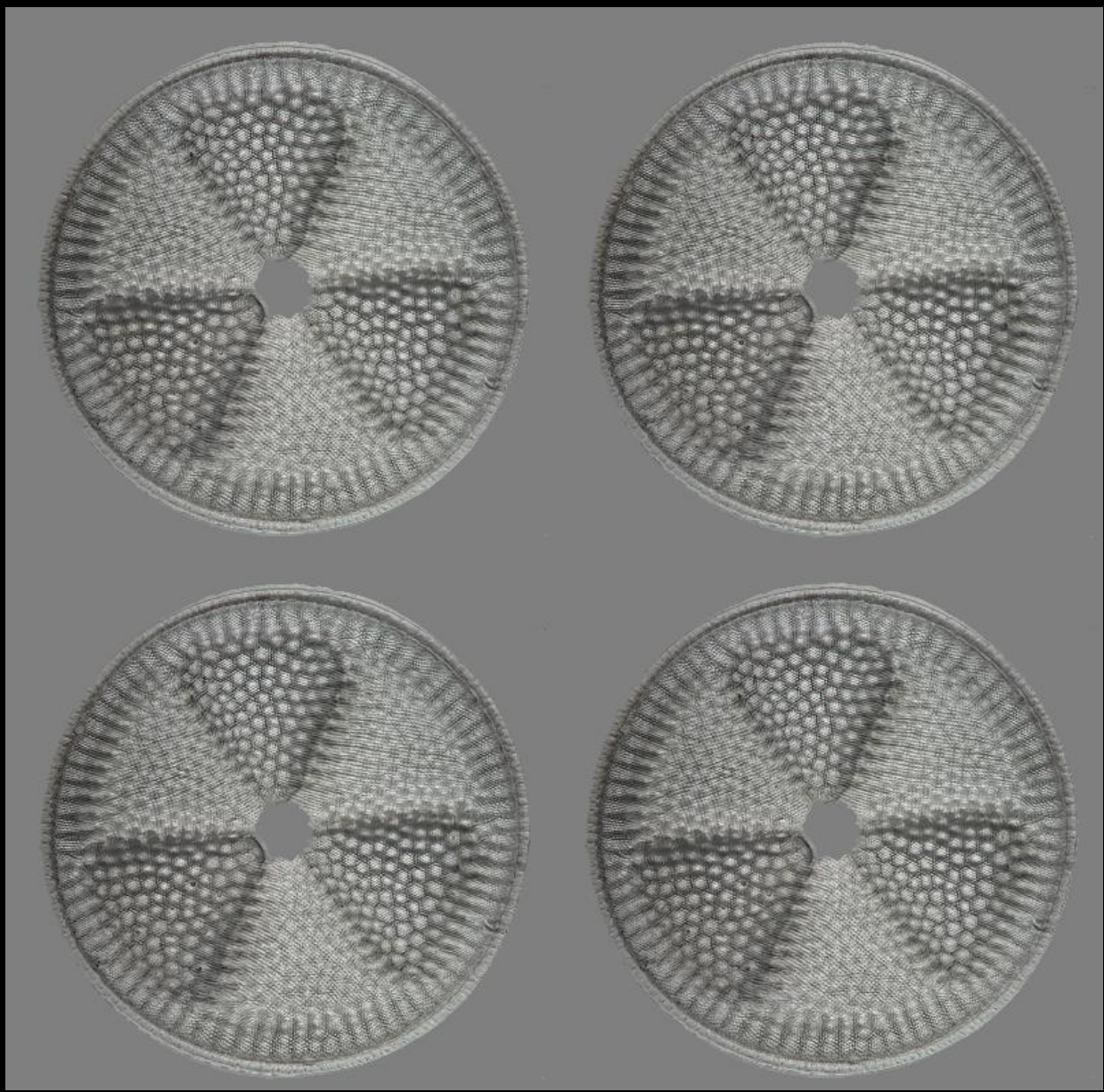


LRL



# RLR, LRL, RL etc.: Seite an Seite montierte Bilder

RL  
LR



# 3D - Parameter-Fenster

PICOLAY 3D display

Length of Z axis (% of image height)

Enlarge pixel depth

Perspective (%)

Projection based on depth map

Hologram stacking

Back

Images to be generated

Stereo  Relief  Viewing angle  Distance

Red-cyan  [RLR]  [LRL]

[R]+[L]  Rocking gif

[RL]  [LR]  [RL][LR]

[--]  Interlaced  ips

Background

Average  Colour

3-D rotation parameters

(+/- 360°)  Stepwise rotation around axis:

X   X  Y  Z

Y

Z

Repeats  x Feed rate  °

**Background:** Strukturarmer Hintergrund: Mittelw. oder Farbe

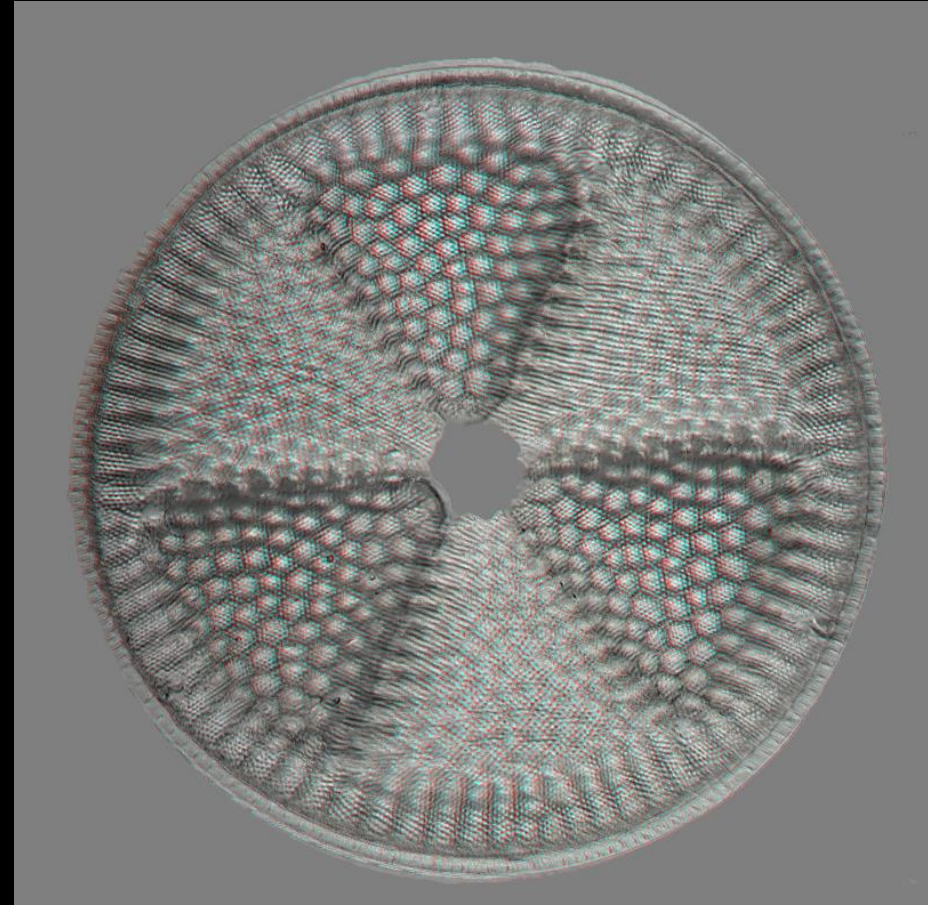
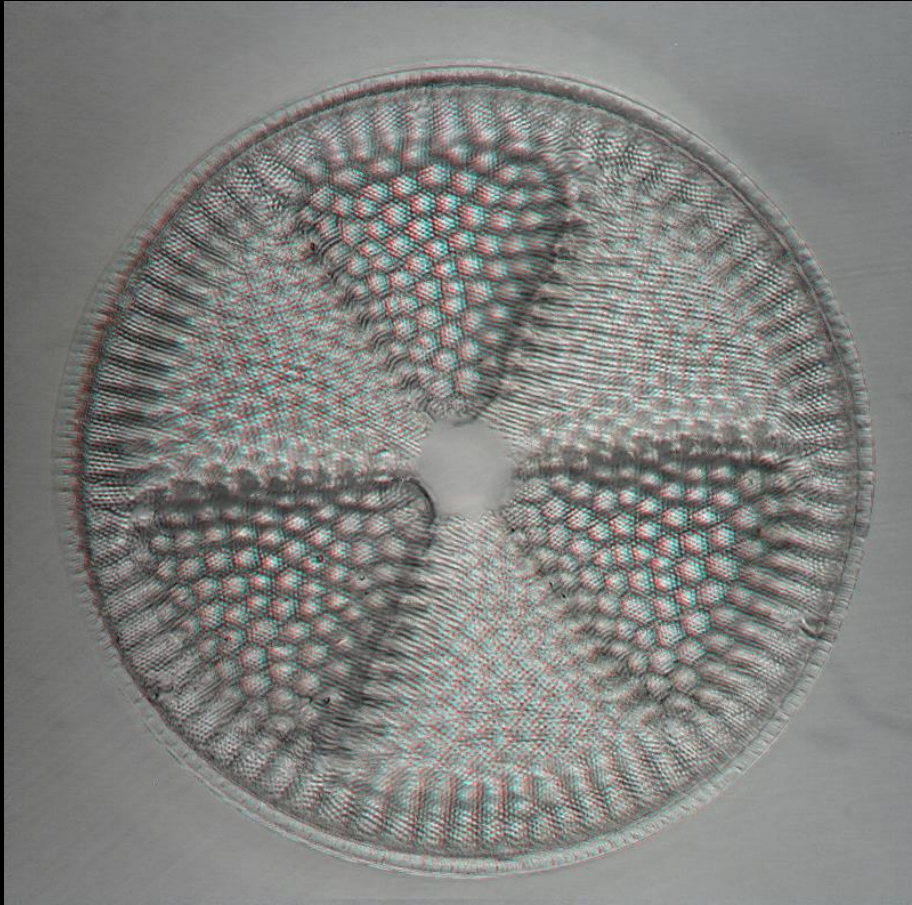
**3D Rotation:** um die X-, Y- oder Z-Achse (auch ohne Stereo)

**Stepwise rotation:** Schrittweise Rotation

**Repeats:** Wiederholungen, **Feed rate:** Vorschub jeweils in °



Background: Strukturarmer Hintergrund: Mittelw. oder Farbe

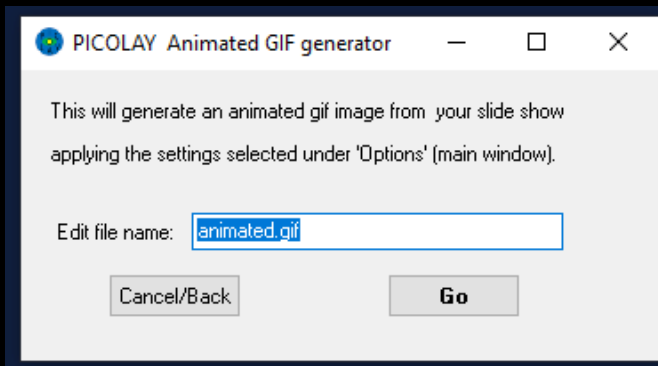
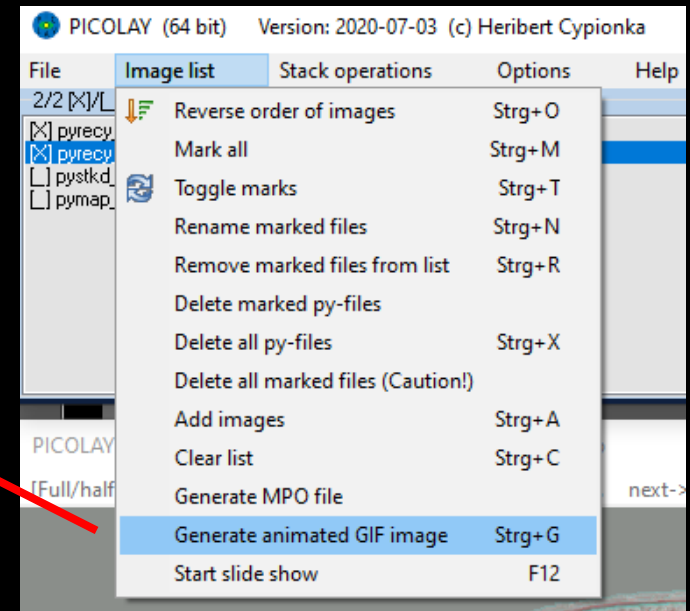
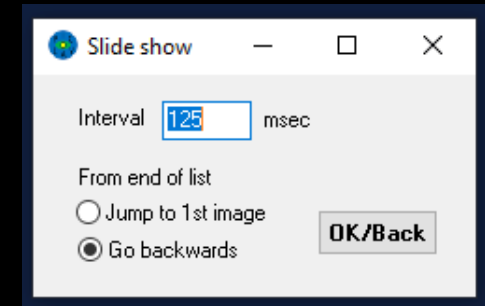


Background: Mittelwert

Farbe (! bei Rotation)

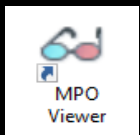
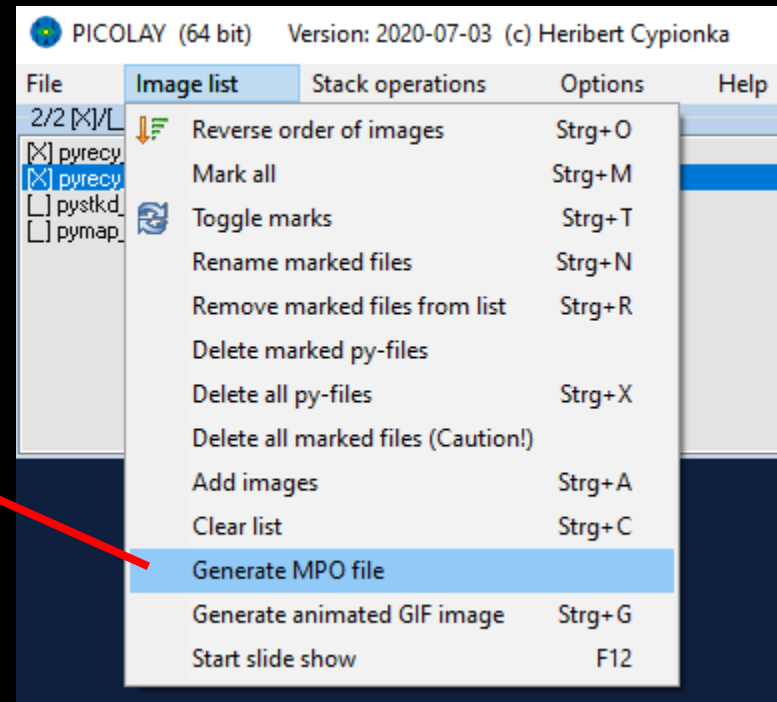
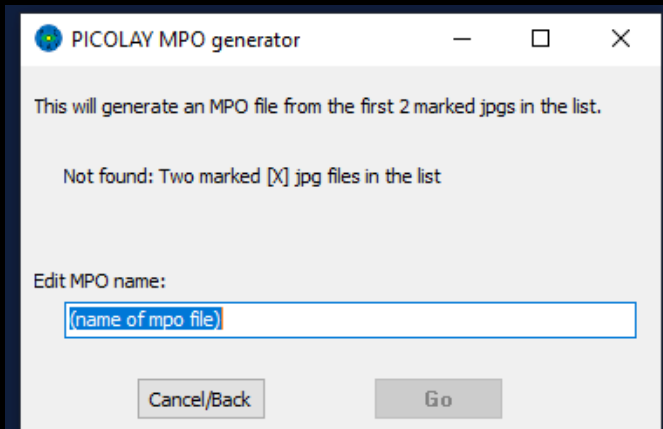
# Animierte Gif-Bilder erstellen

- Verarbeitet werden alle markierten [X] Bilder in der Liste
- Große Bilder vorher verkleinern!
- Unter **Options** → **Slide show features**
  - > Millisekunden Anzeige pro Bild
  - > Am Ende des Stapels zurück laufen oder zum 1. springen
- Vorschau mit **Image list** → **Start slide show** oder **F12**
- Unter **Image list** → **Generate animated GIF image** oder **Strg-G** Dateinamen eingeben:



# MPO-Dateien erstellen

- Verarbeitet werden die ersten beiden markierten [X] jpg-Bilder in der Liste
- Unter Image list → Generate MPO file  
Dateinamen eingeben



Freeware MPO Viewer erlaubt vielseitige Darstellungen  
→ Download von [microbial-world.com/freewarelist.htm](http://microbial-world.com/freewarelist.htm)



[www.picolay.de](http://www.picolay.de)