Computing the image of Thurston's skinning map

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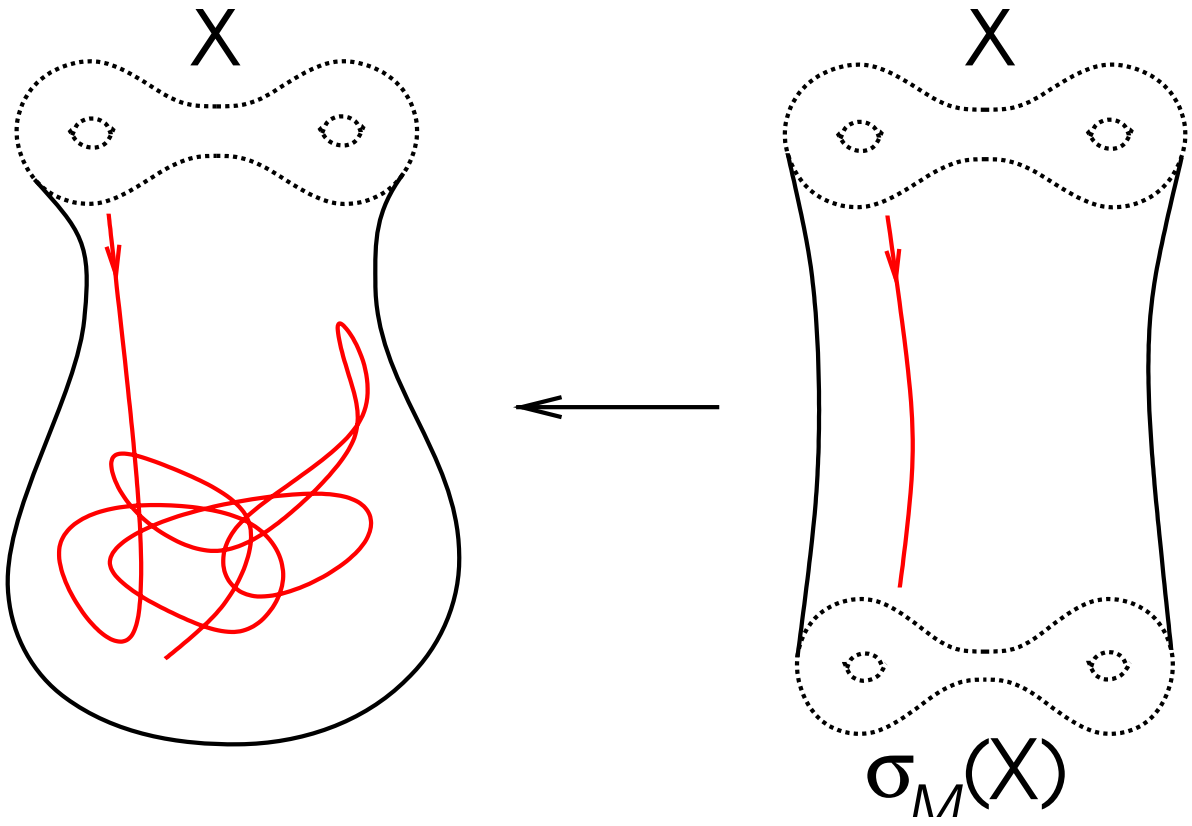
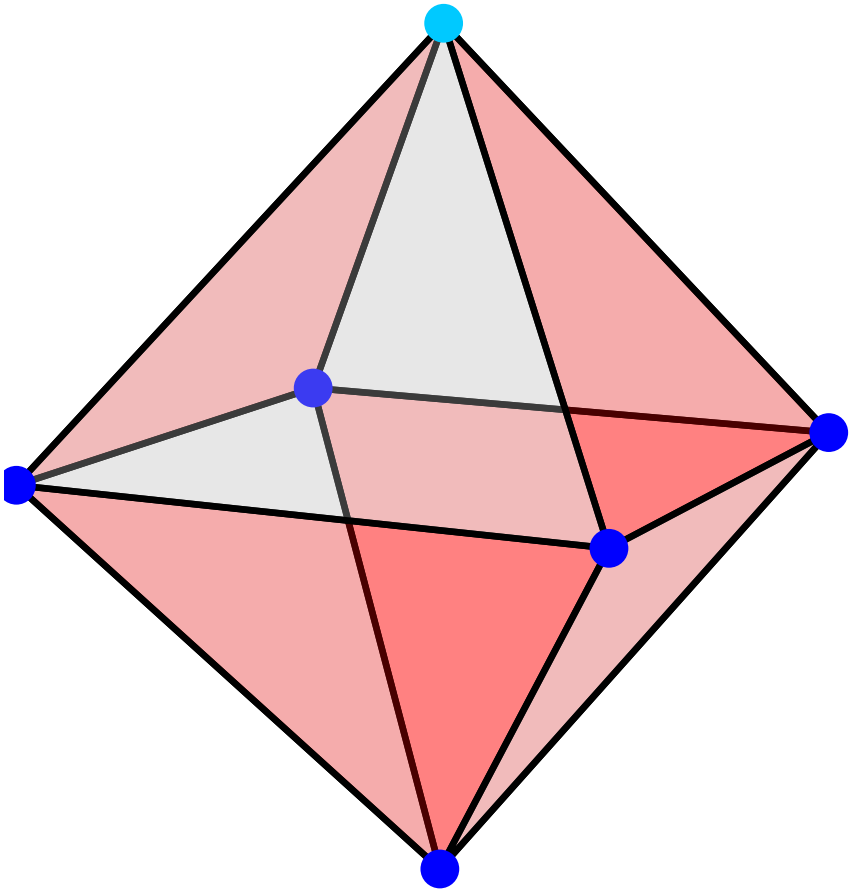
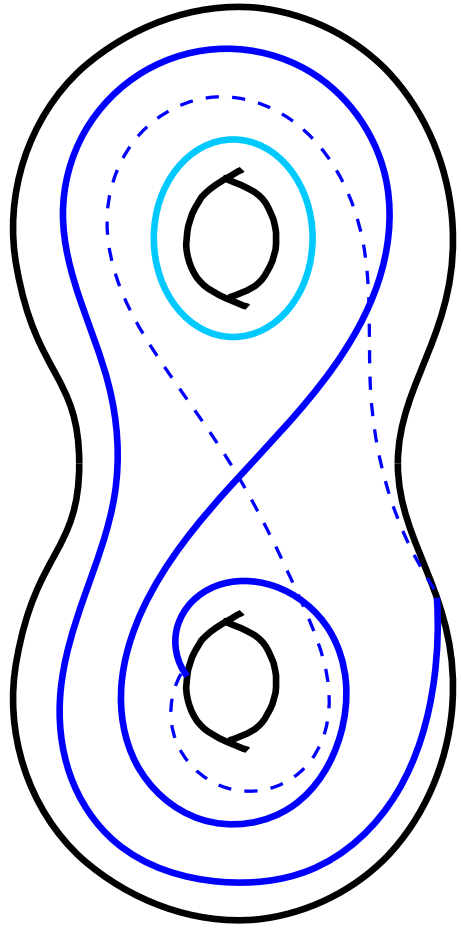
The Skinning Map



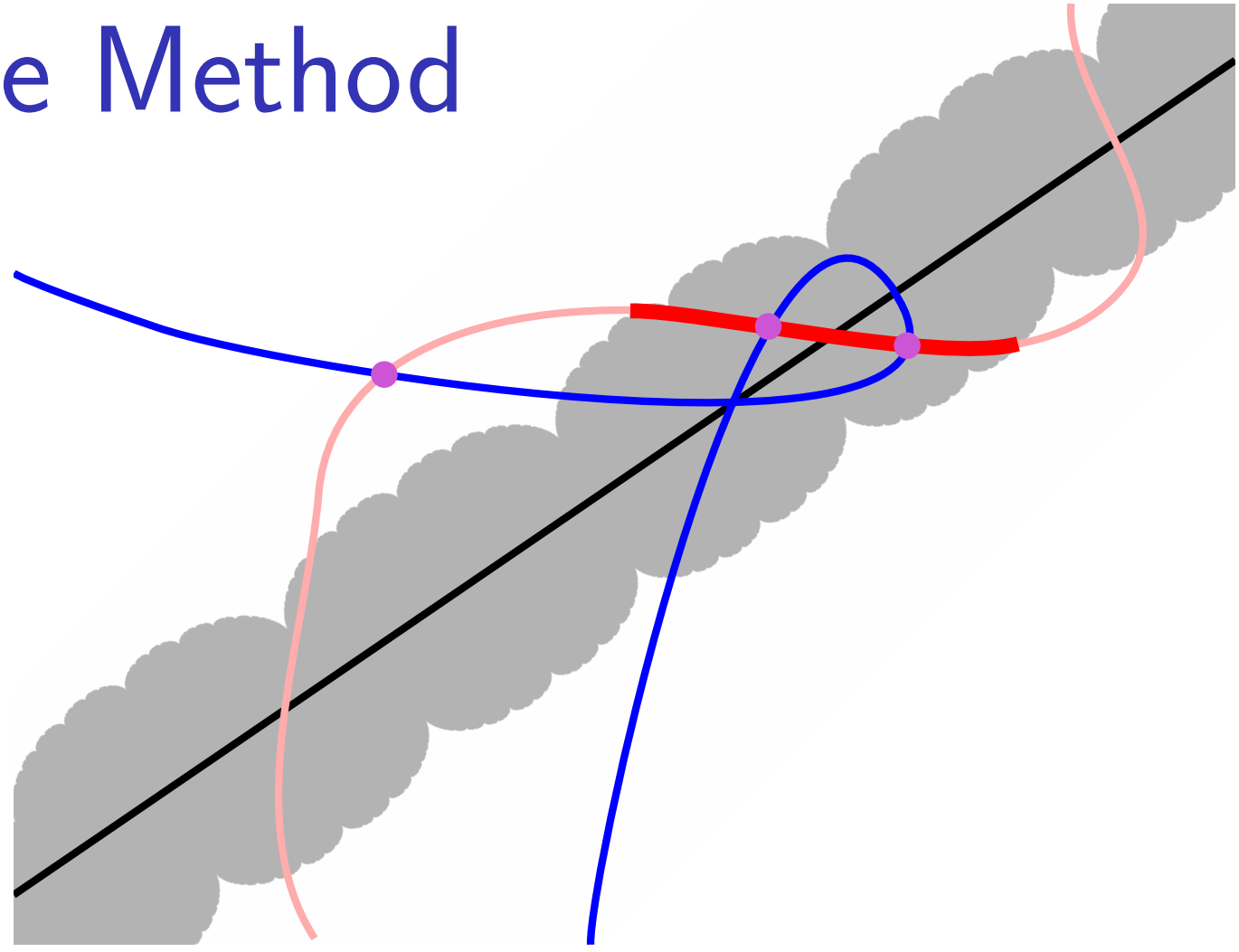
Goal: Compute and see image of σ_M

The Examples



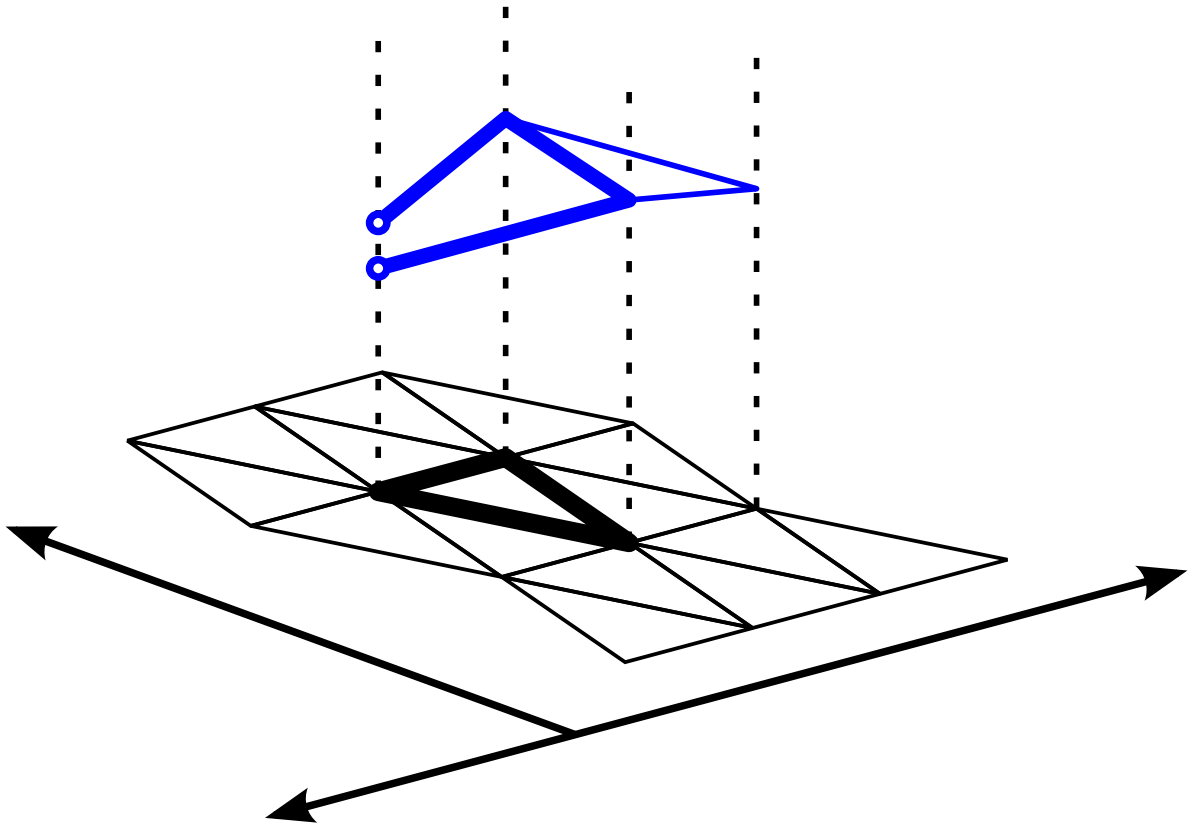


The Method



Intersections in the character variety

The Implementation



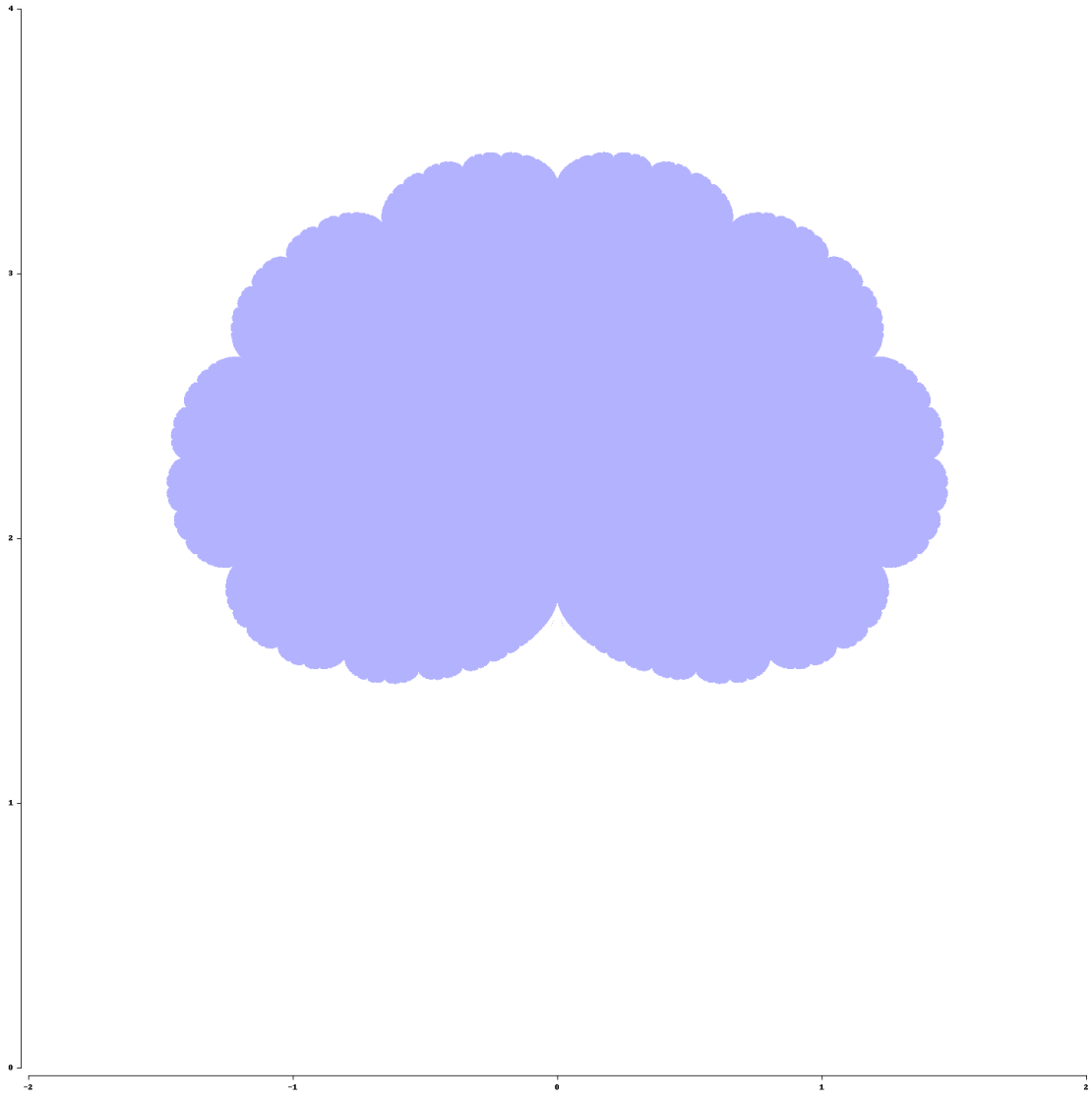
Triangulate the fiber product

The Flayer

Demonstration of fiber product reconstruction

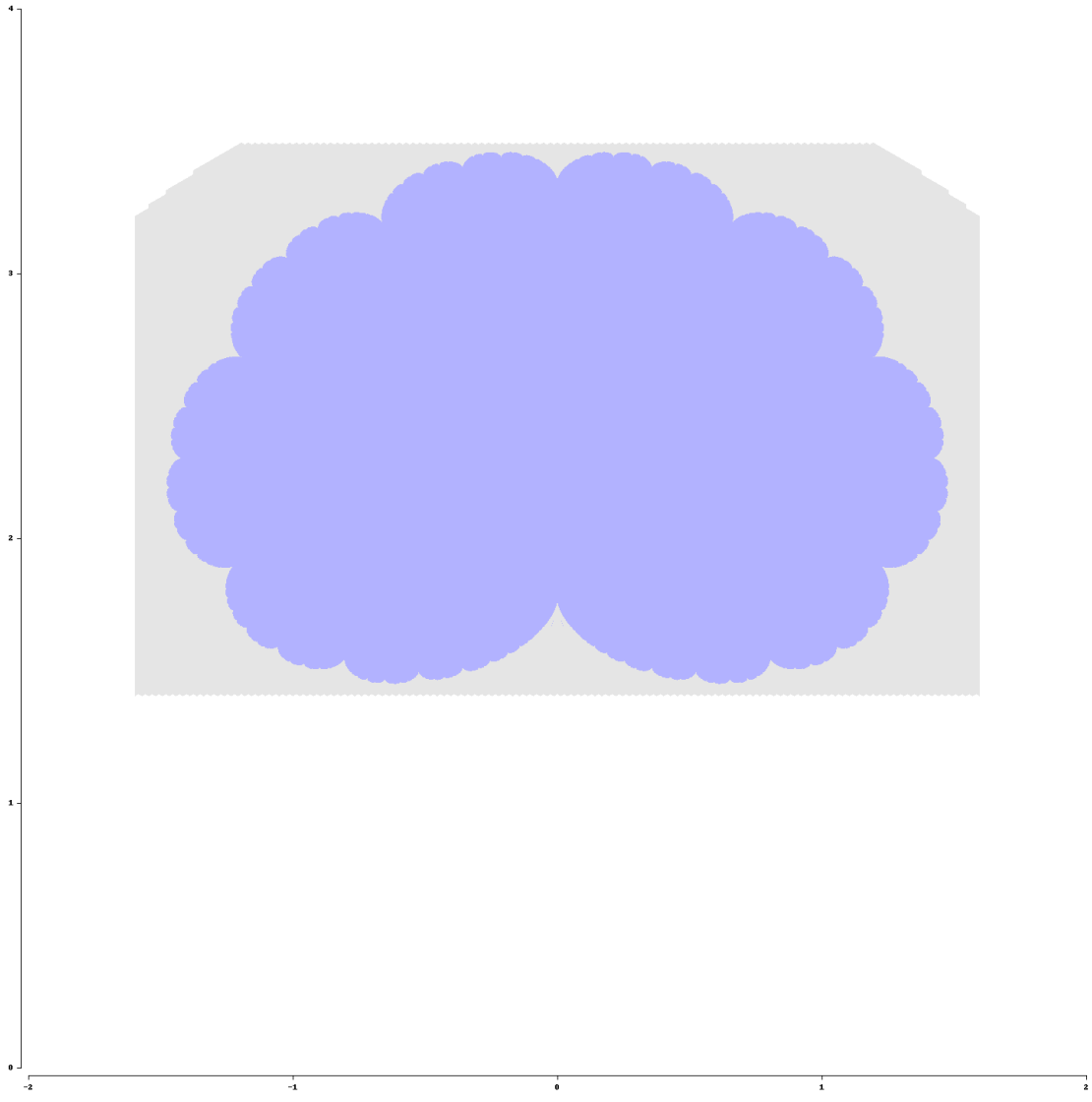
Gallery of skinning map images

Oct1 – Rectangular boundary [cf. Chesebro-Deblois]



$[-2, 2] \times [0, 4]$

Oct1 – Rectangular boundary [cf. Chesebro-Deblois]



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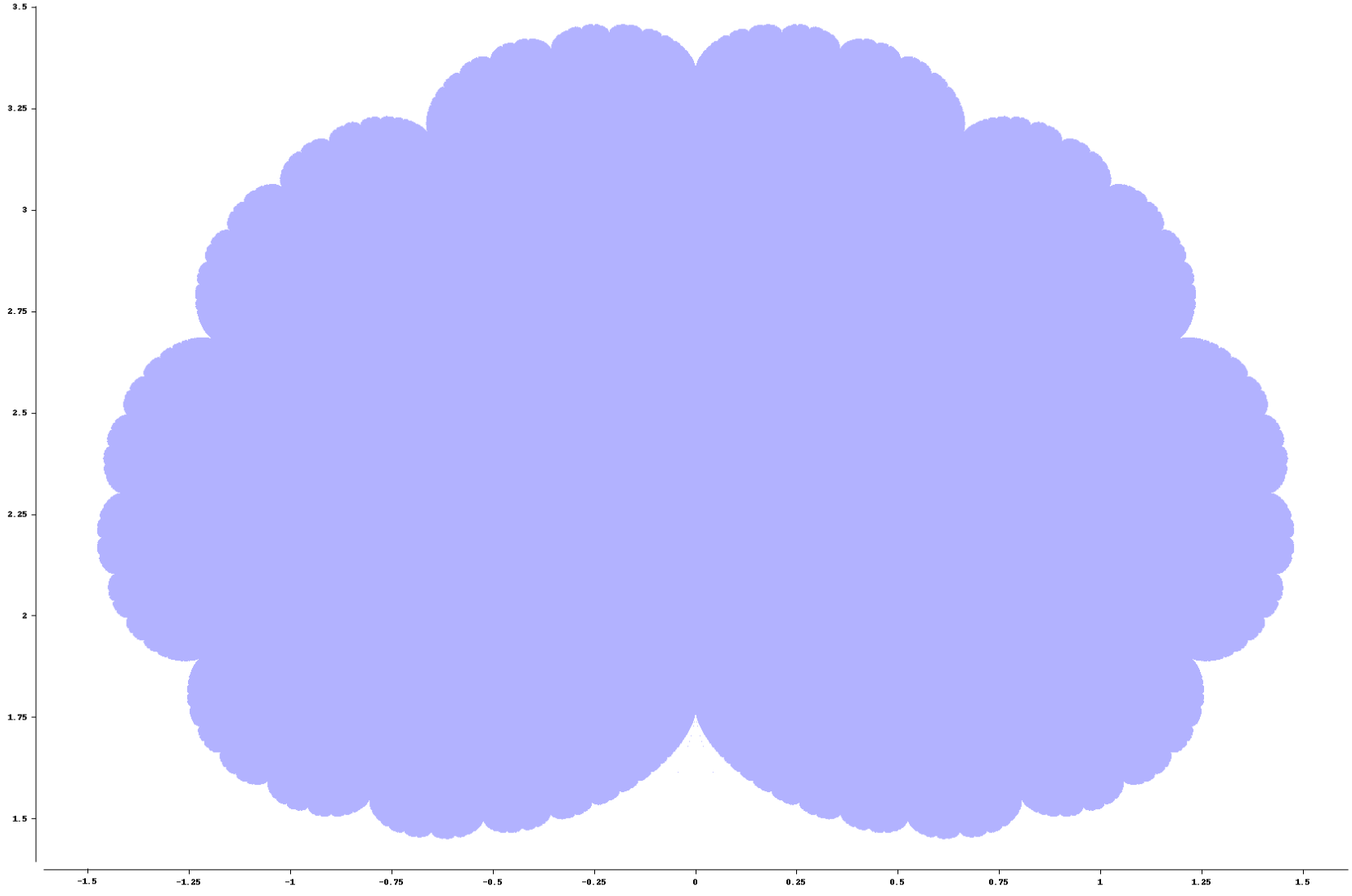

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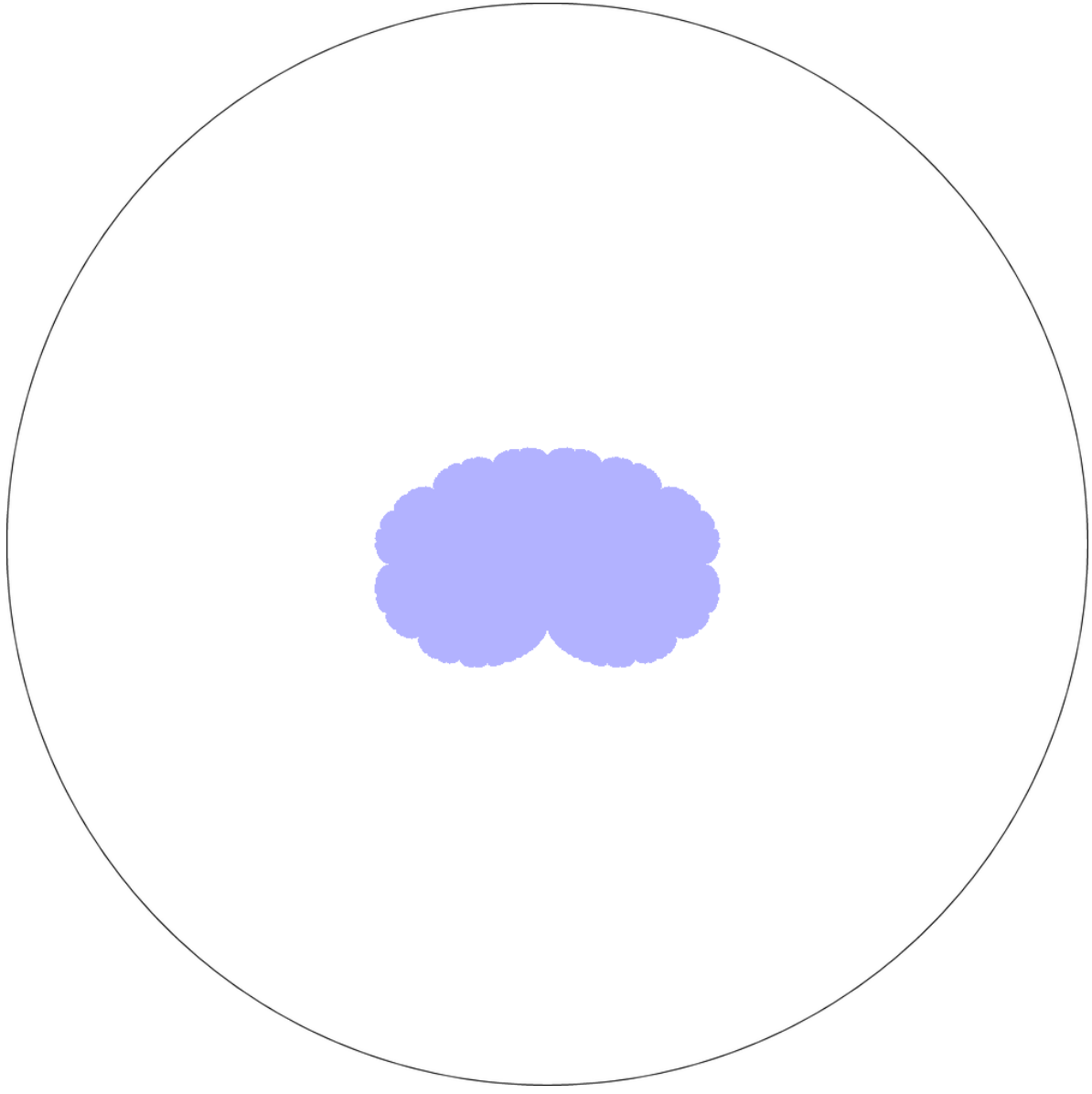
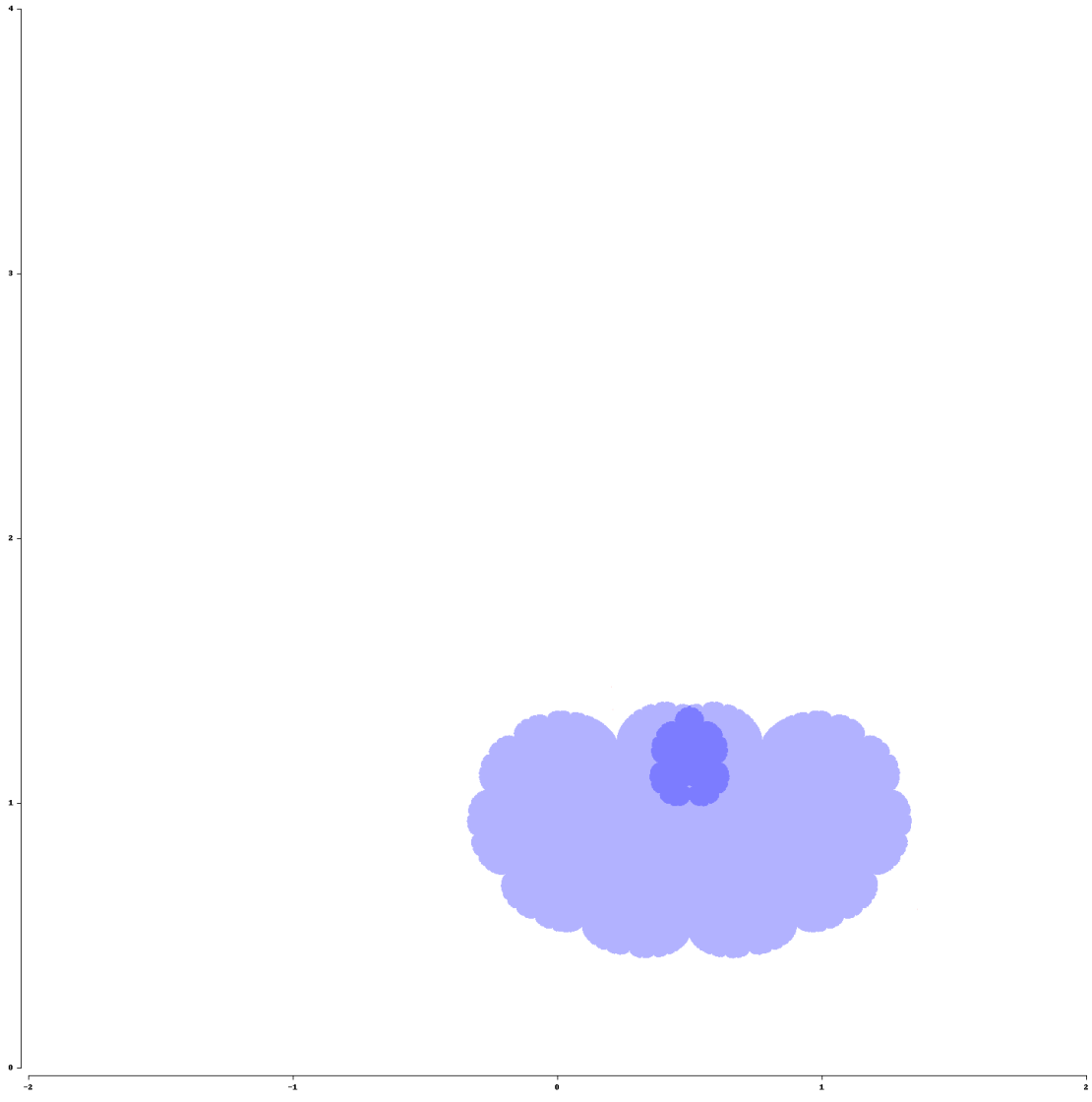


Oct2 – Tetrahedral boundary [cf. Gaster]



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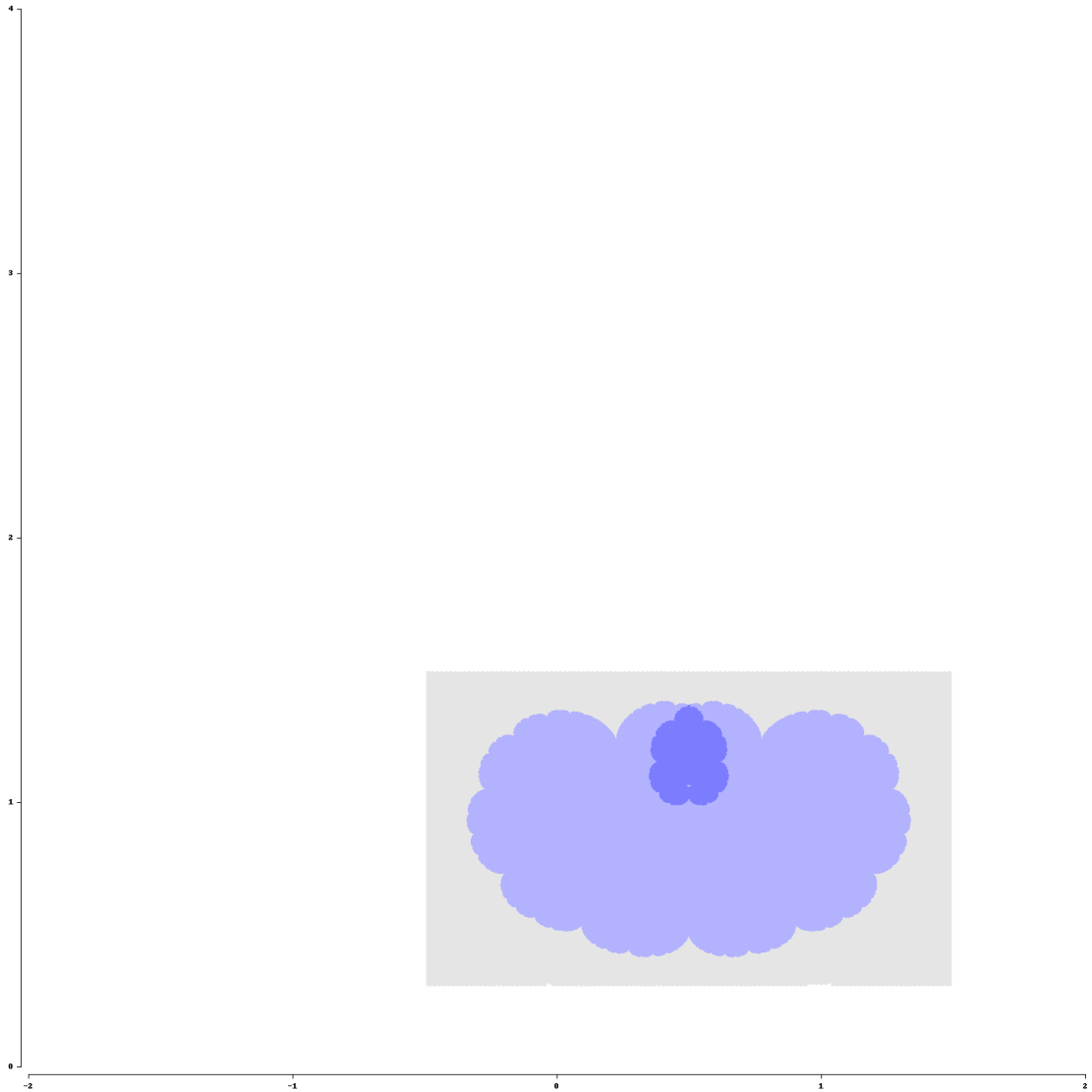
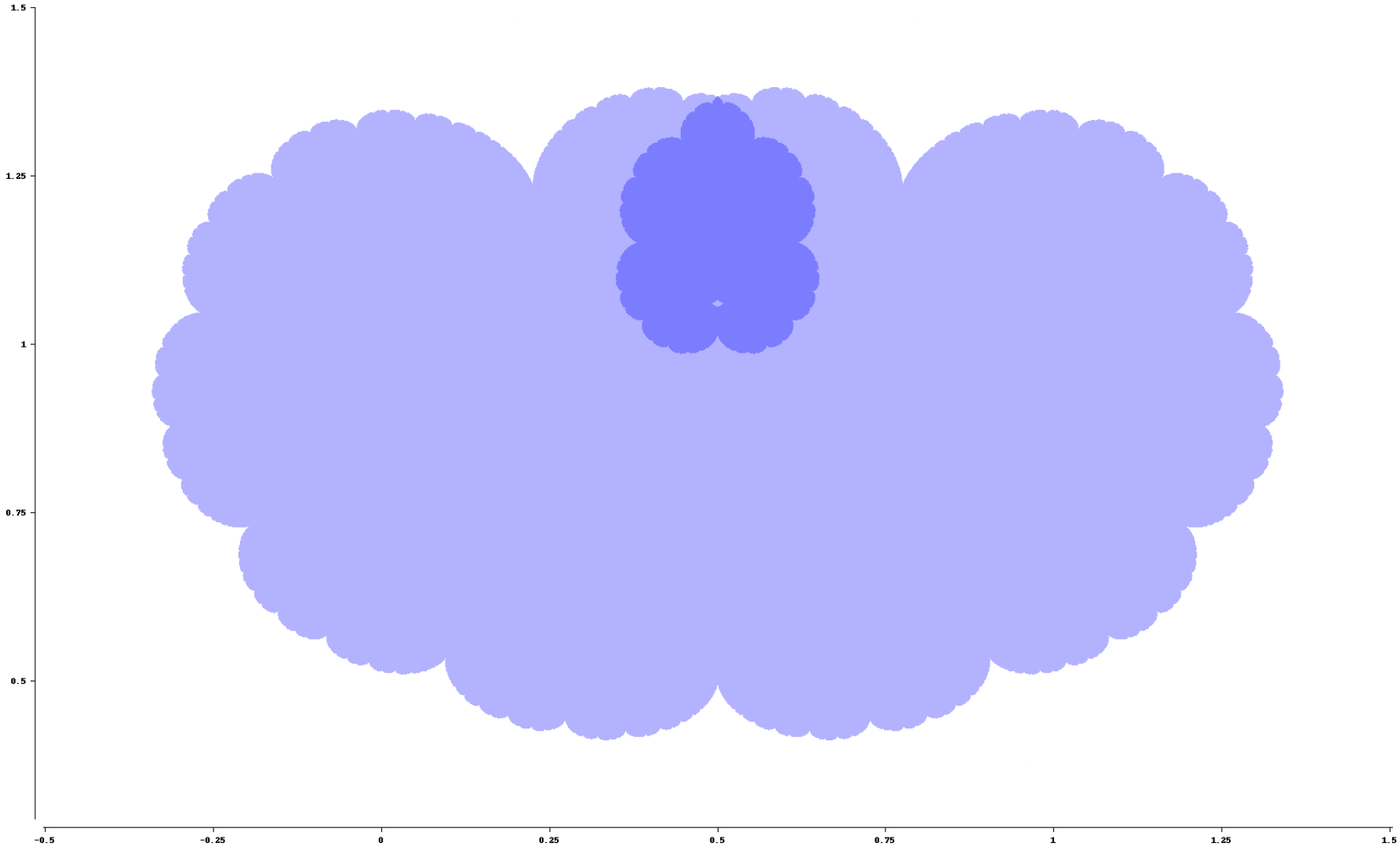


$[-2, 2] \times [0, 4]$

Oct2 – Tetrahedral boundary [cf. Gaster]



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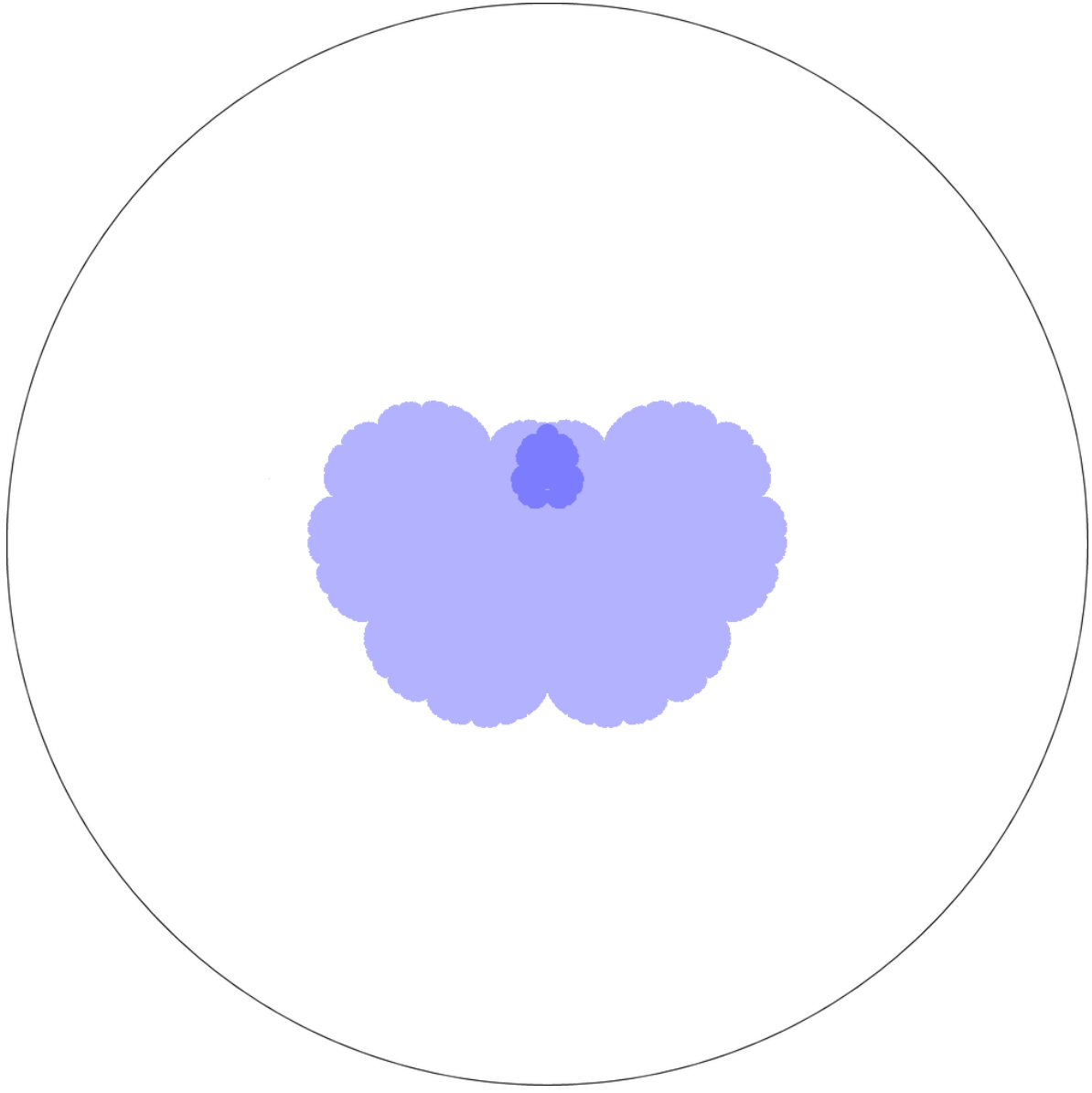
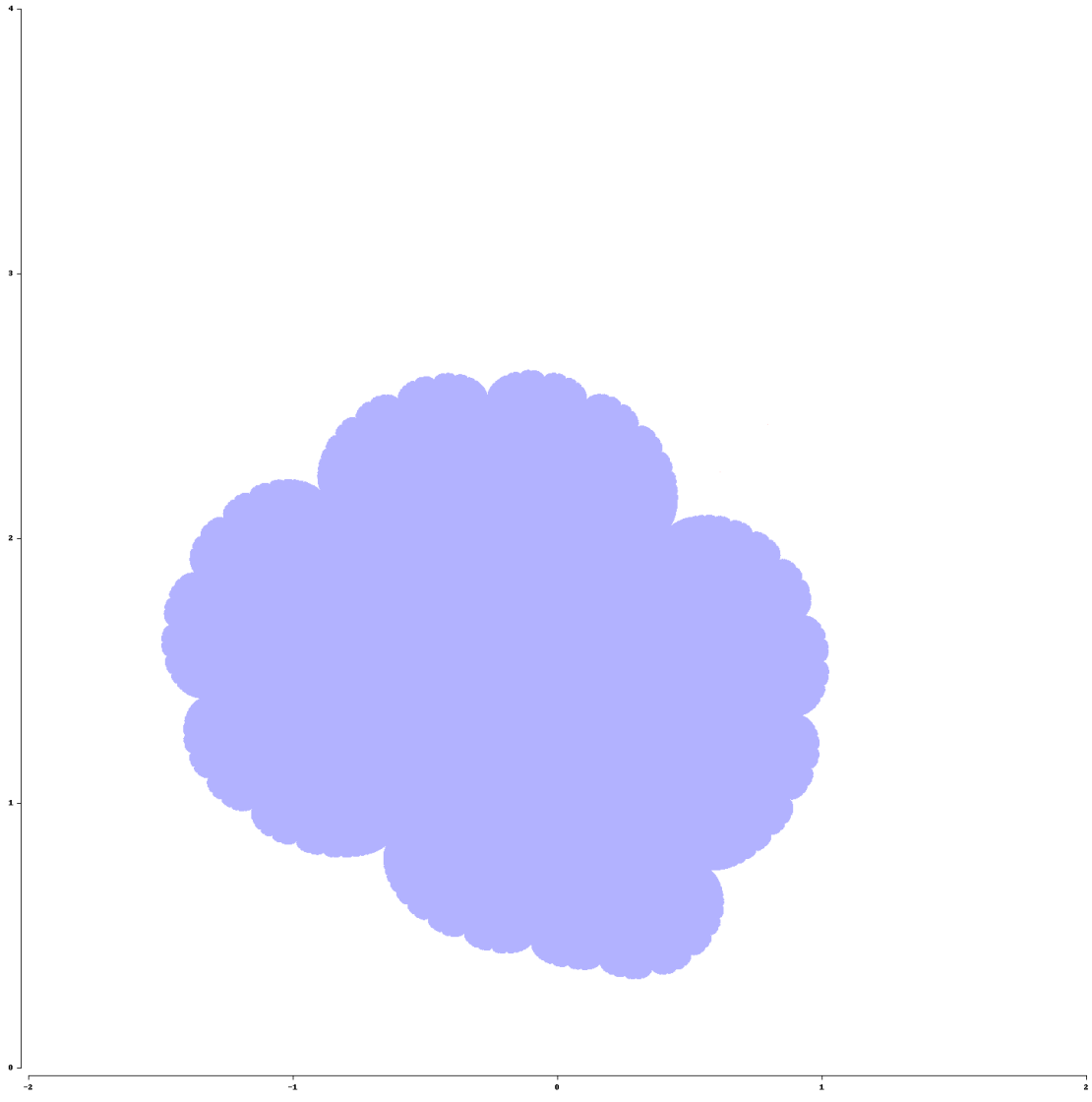
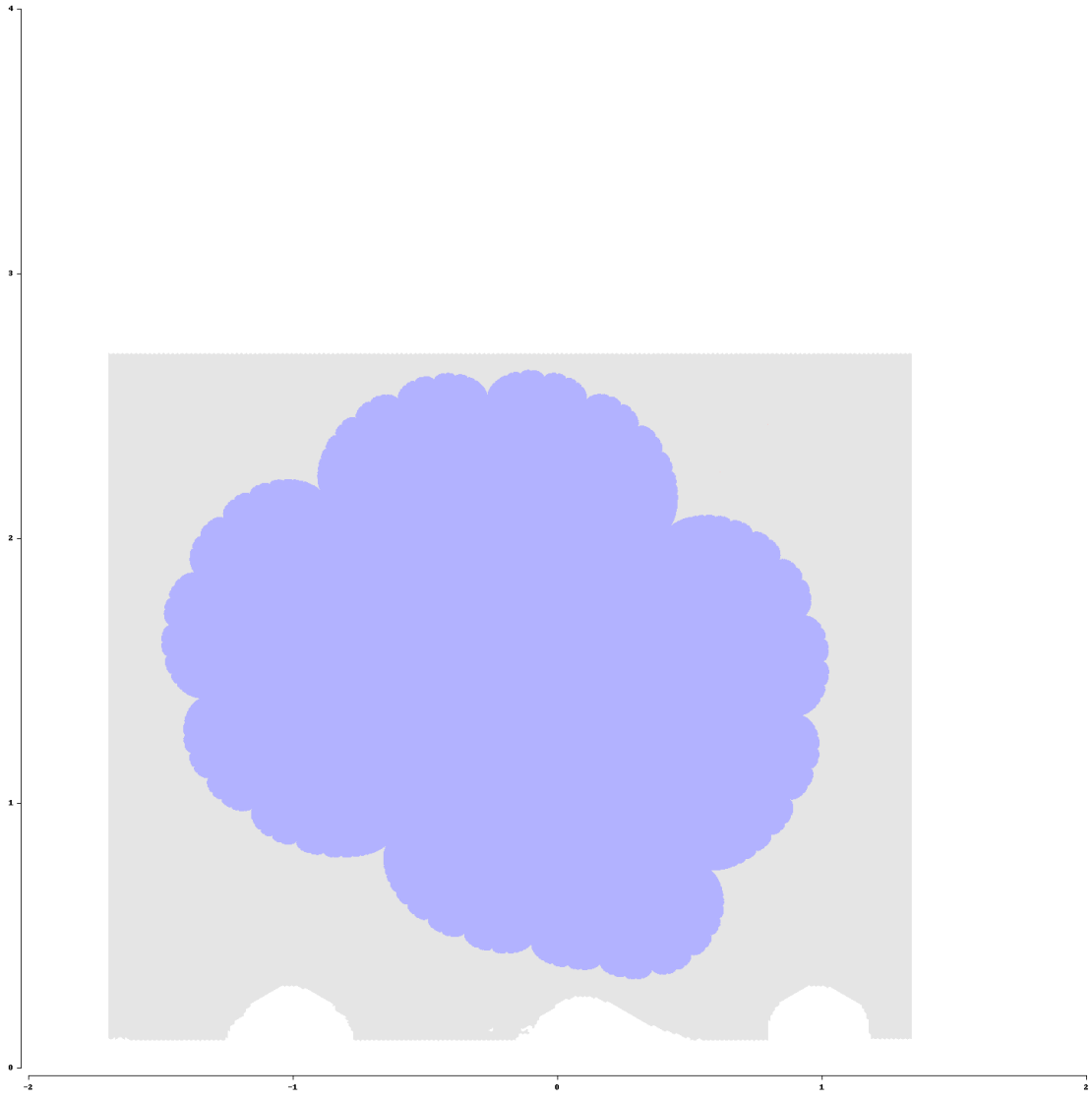


Oct3 – Square boundary



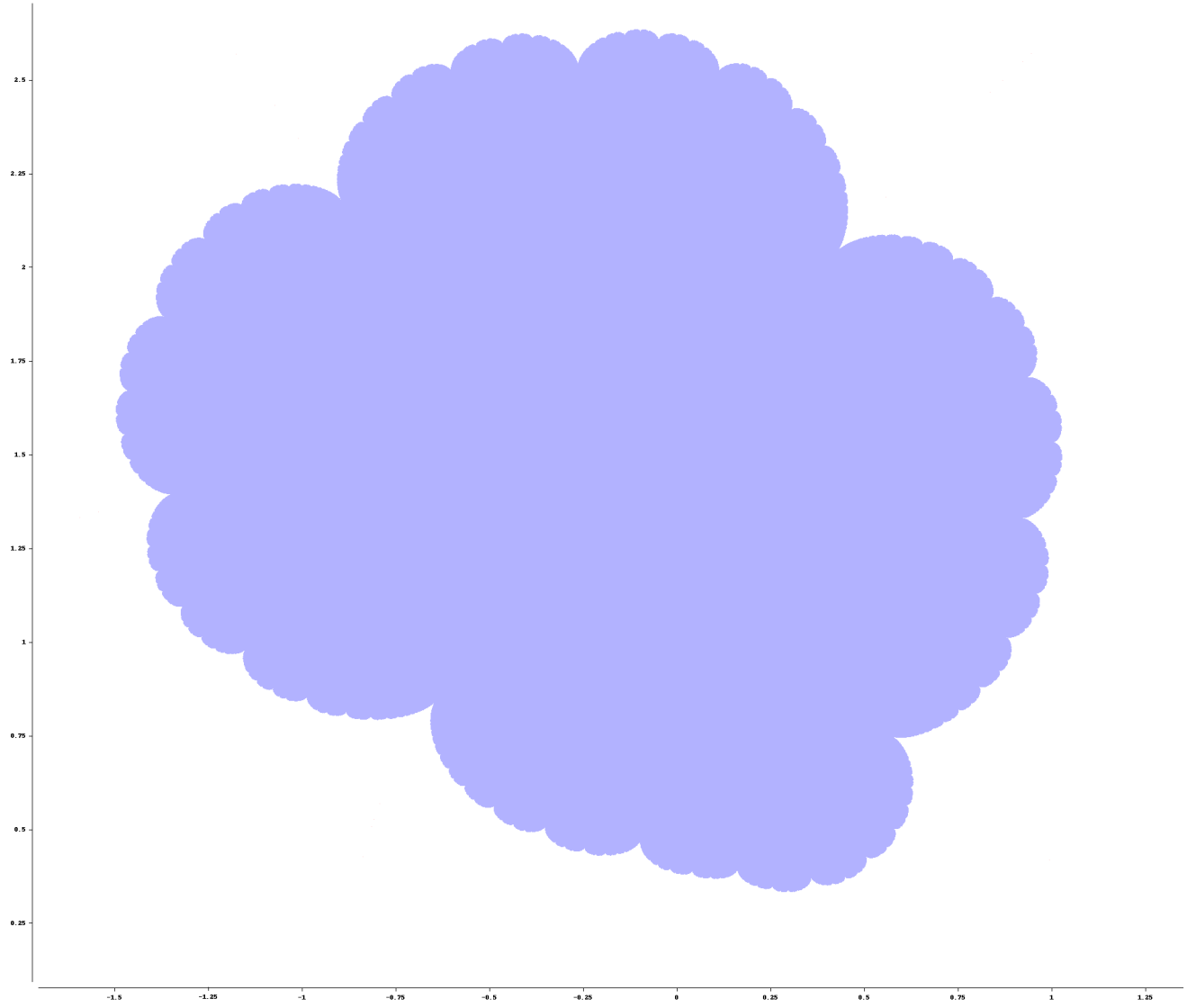
$[-2, 2] \times [0, 4]$

Oct3 – Square boundary



$[-2, 2] \times [0, 4]$

Oct3 – Square boundary



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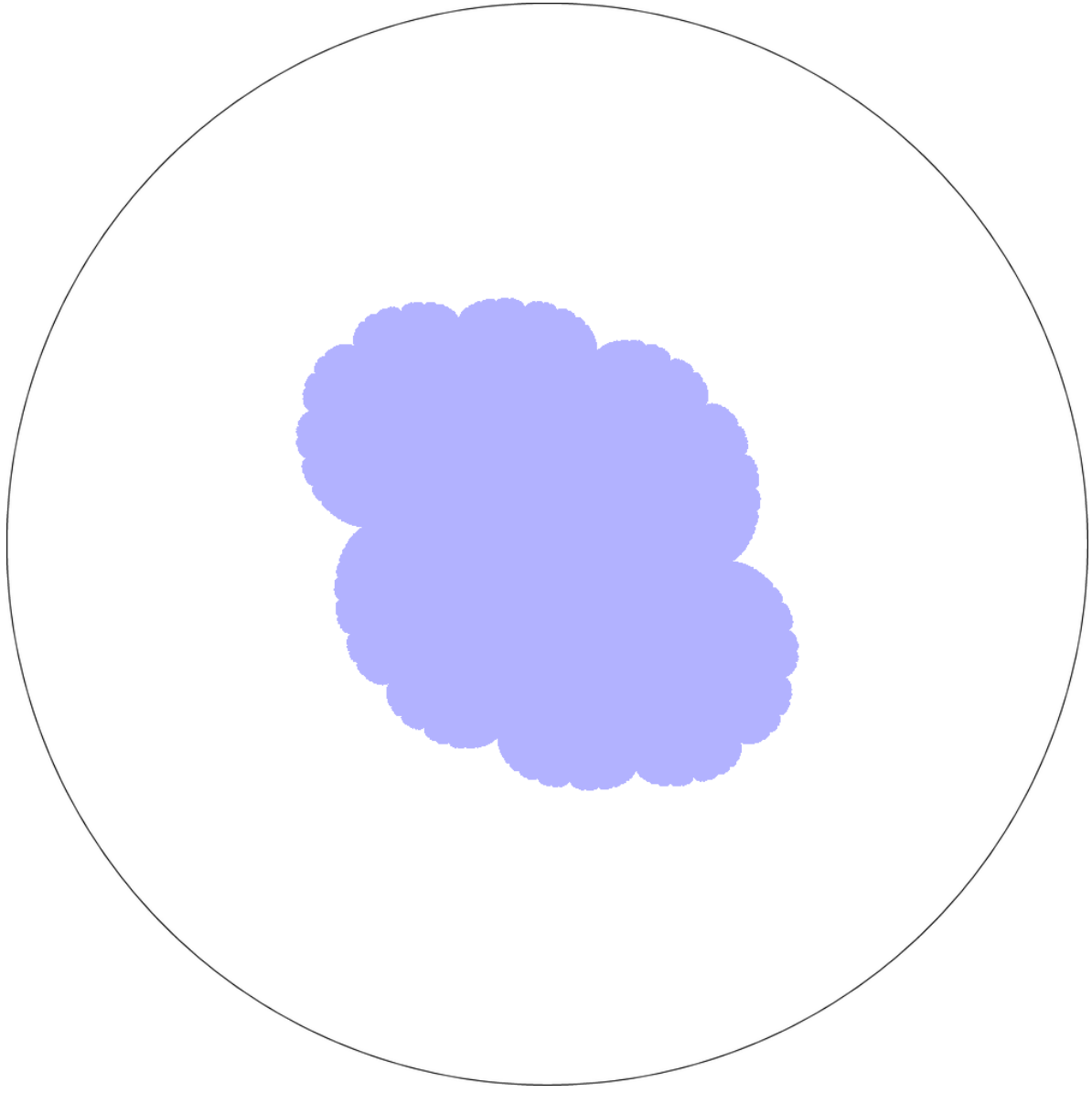
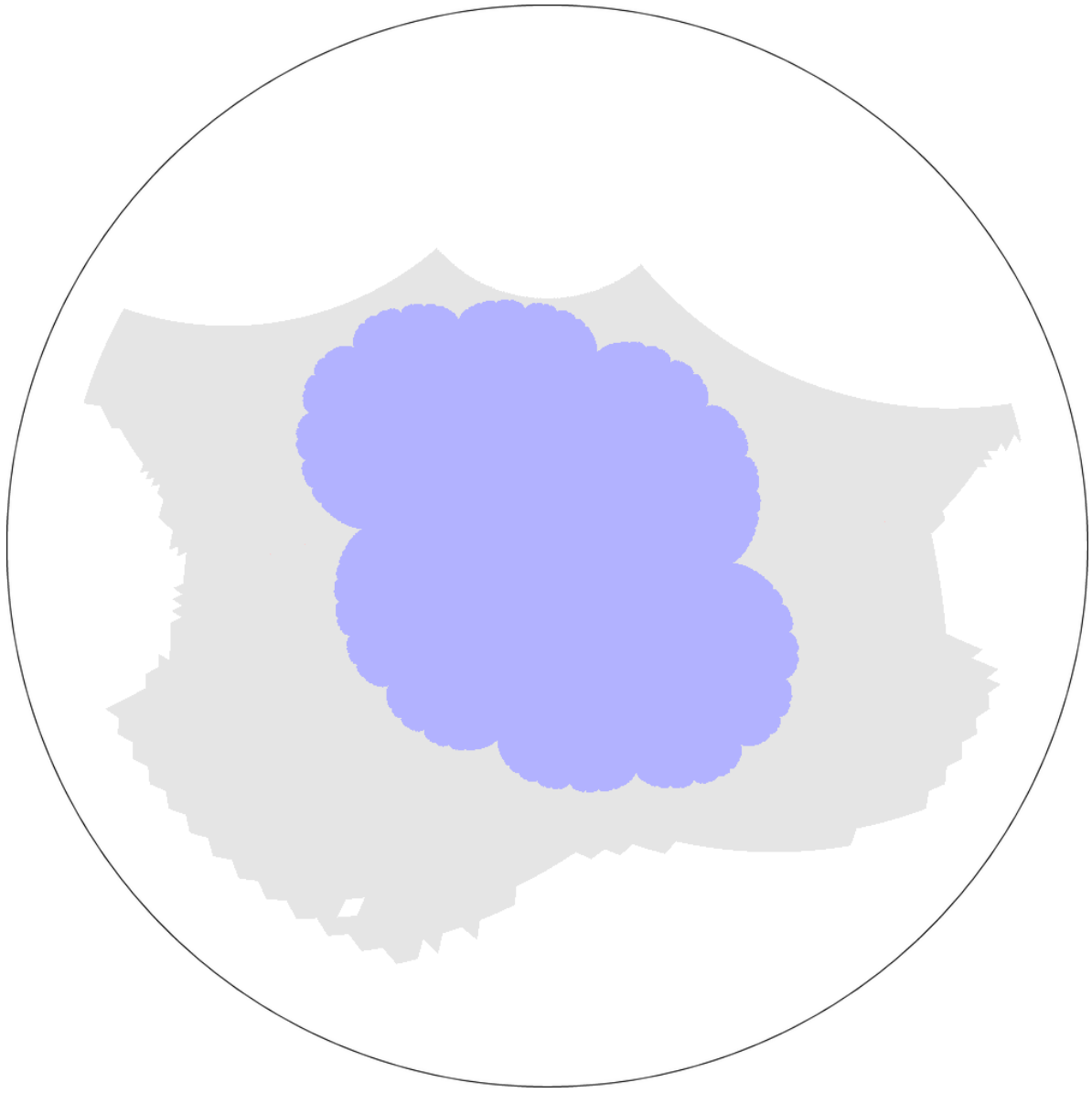
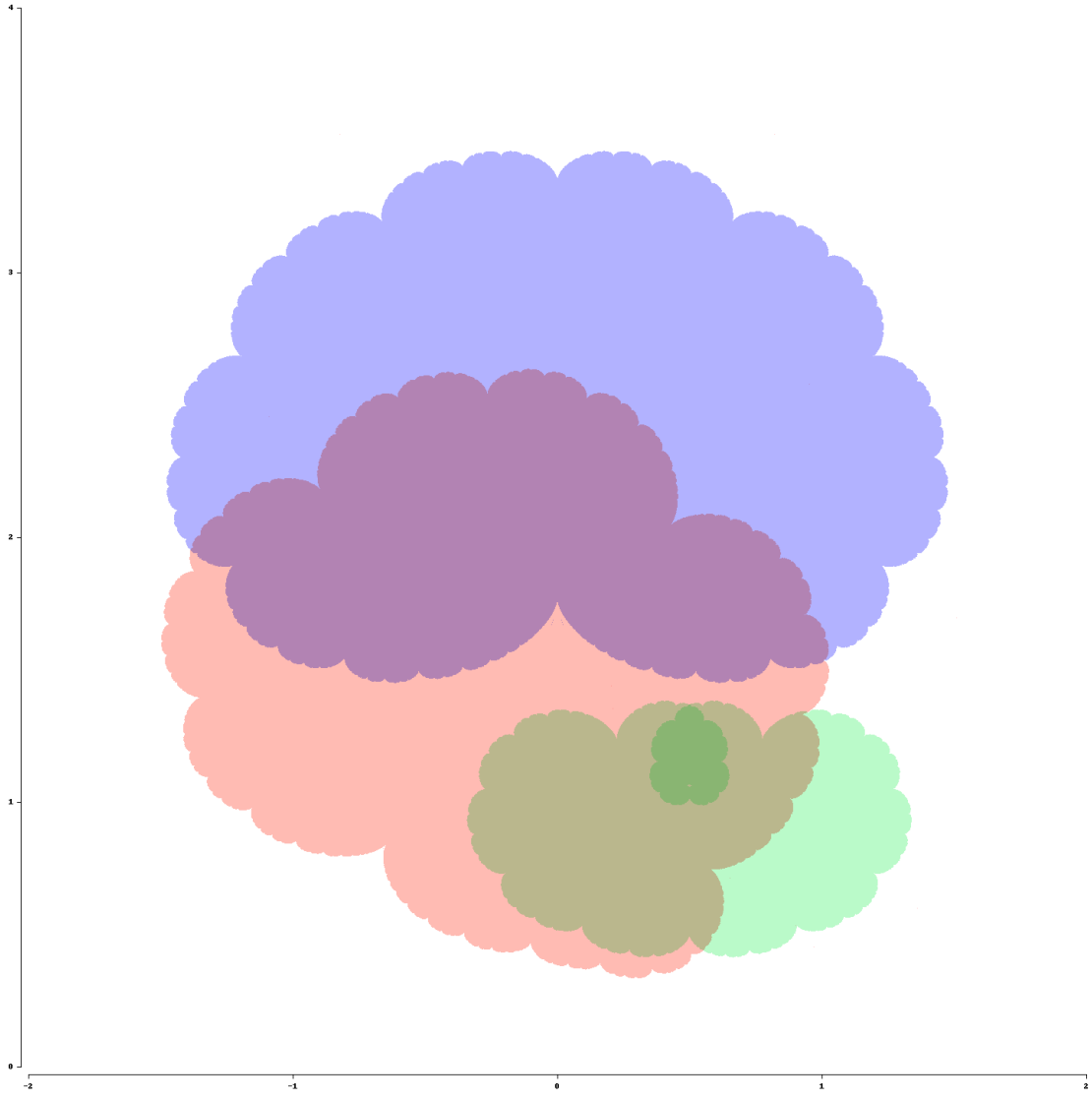


Oct3 – Square boundary



The Octahedral Manifolds



Tools

- Python!
- Flayer
  - Fiber product 2-complex construction
  - Rasterizer
  - Fricke calculus and extension variety code generation
  - Under development, source will be released
- cp1
  - New library for $\mathbb{CP}^1$ structures
  - Python (+ C + Cython + GSL)
  - `http://github.com/daviddumas/cp1`