

Fractal for the function:

$$f(z) = \ln(\ln(\ln z)) - 1, z \in (-6 - 6i, 6 + 6i)$$

by

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Abstract

This note presents the newton fractal for the function:

$$f(z) = \ln(\ln(\ln z)) - 1 .$$

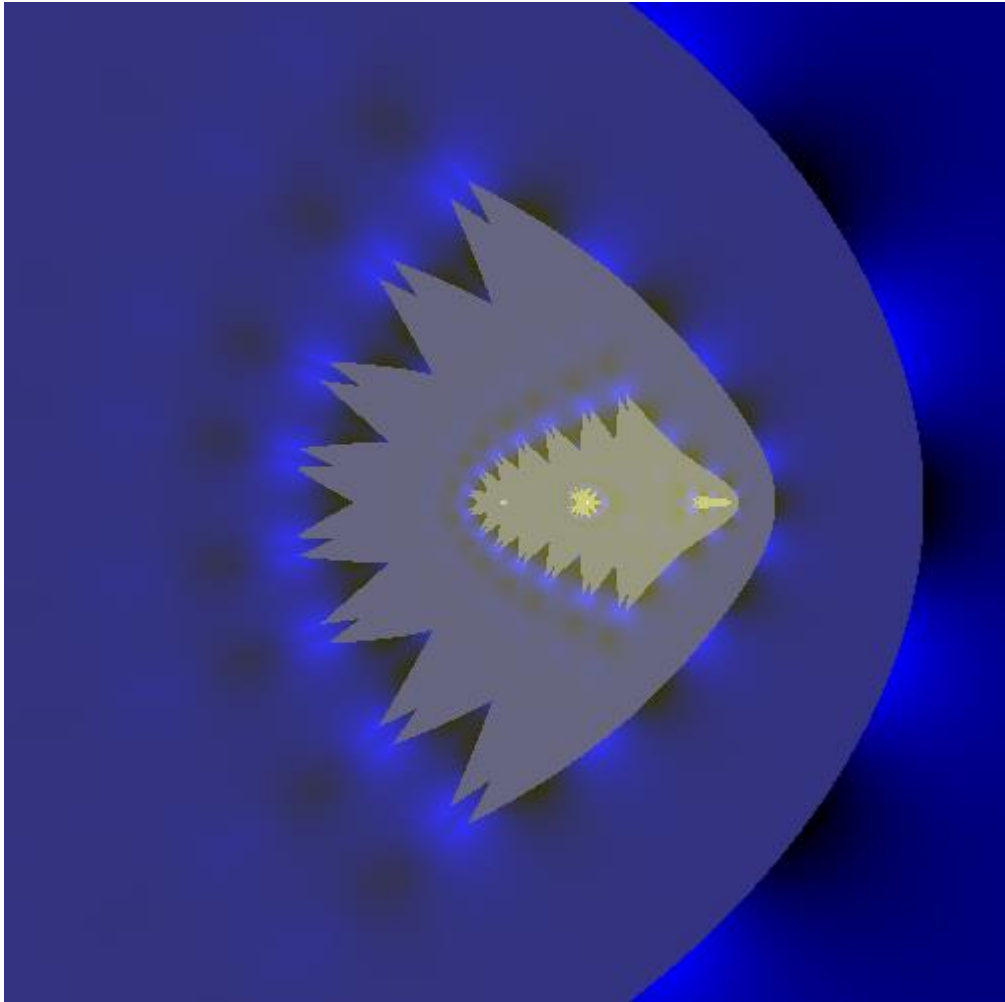


Figure 1.

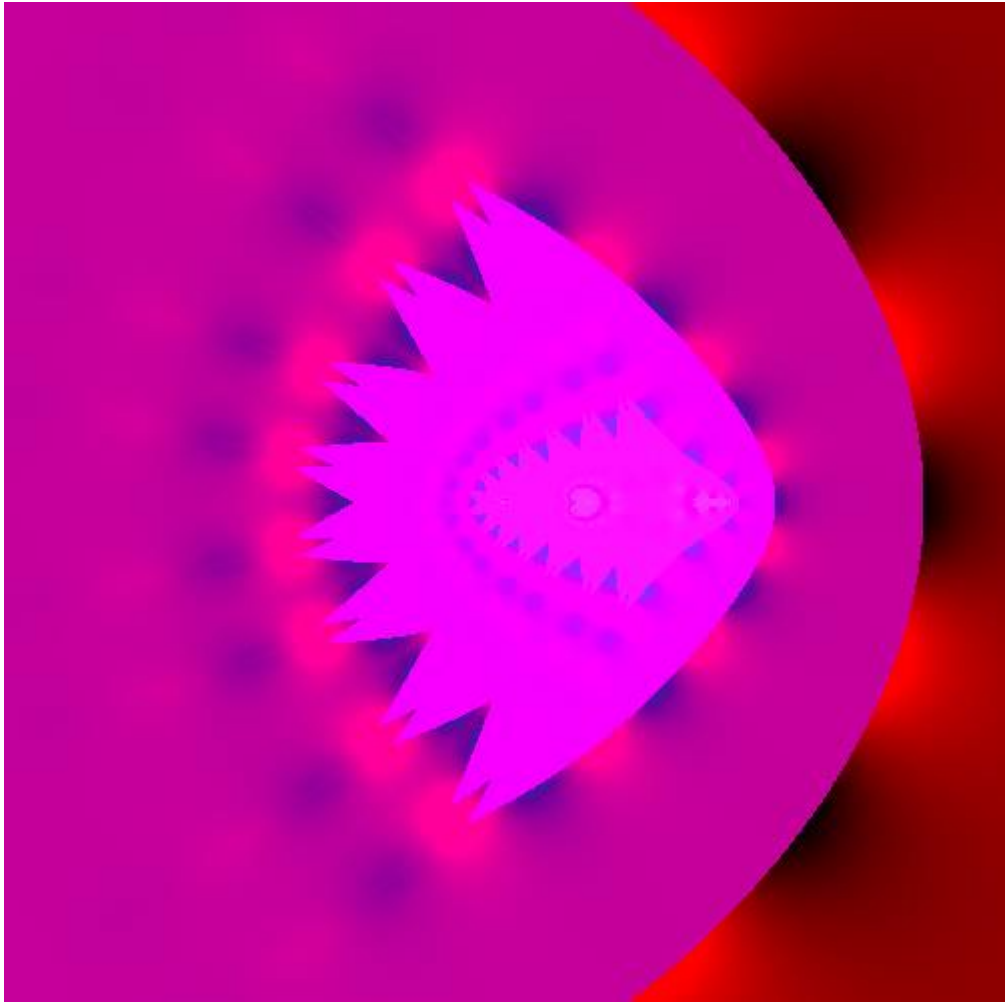


Figure 2.

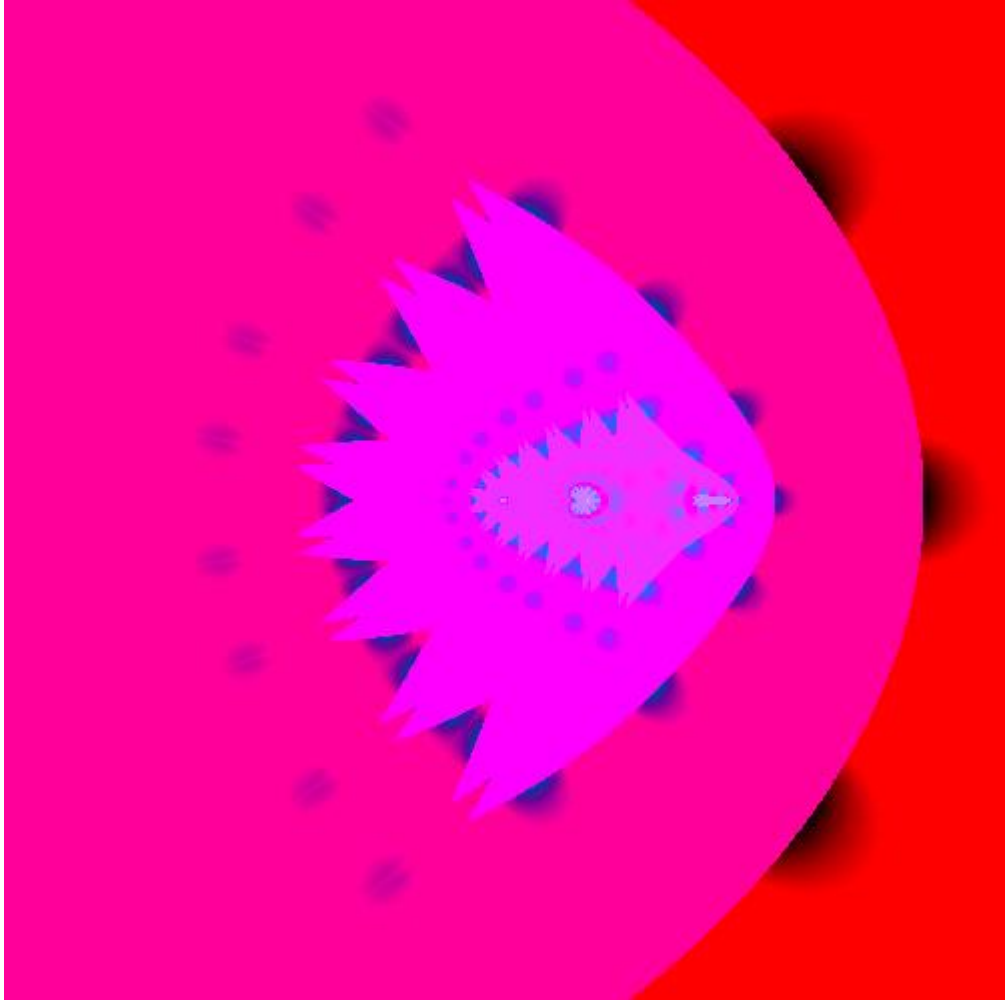


Figure 3.

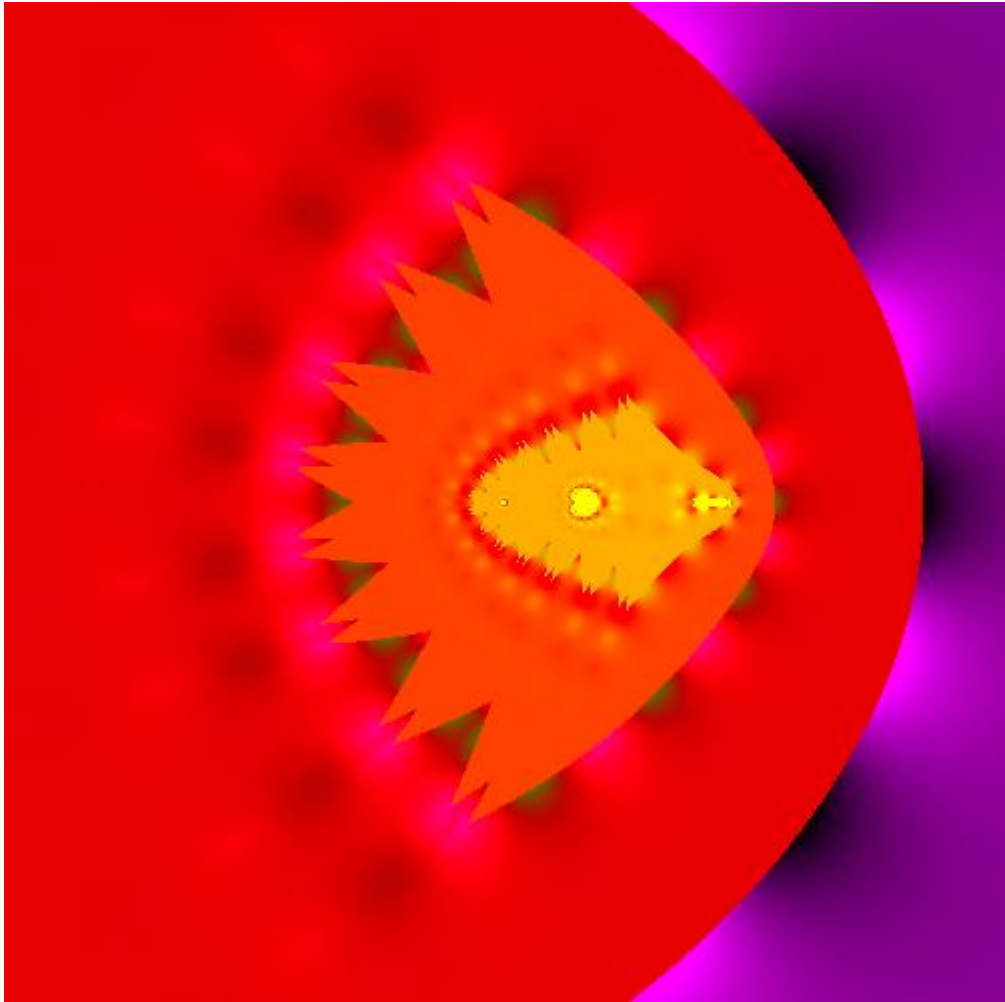


Figure 4.

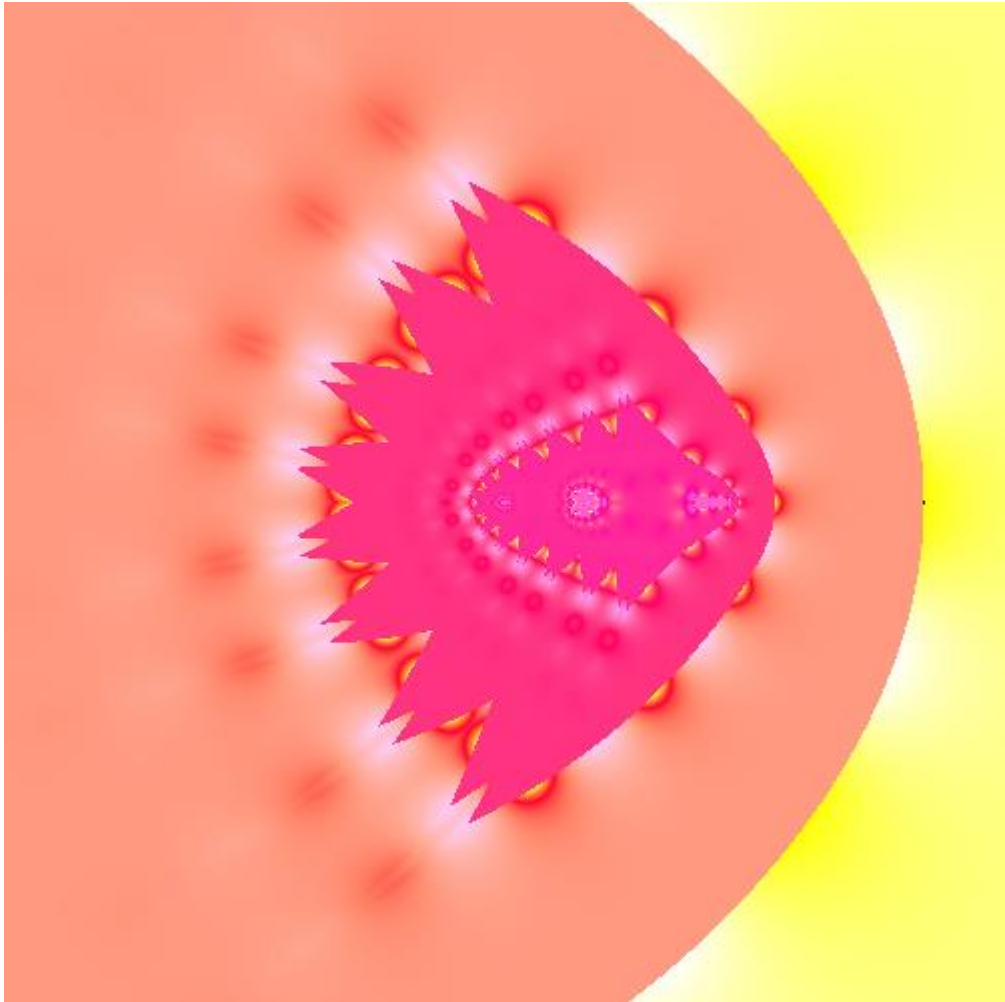


Figure 5.

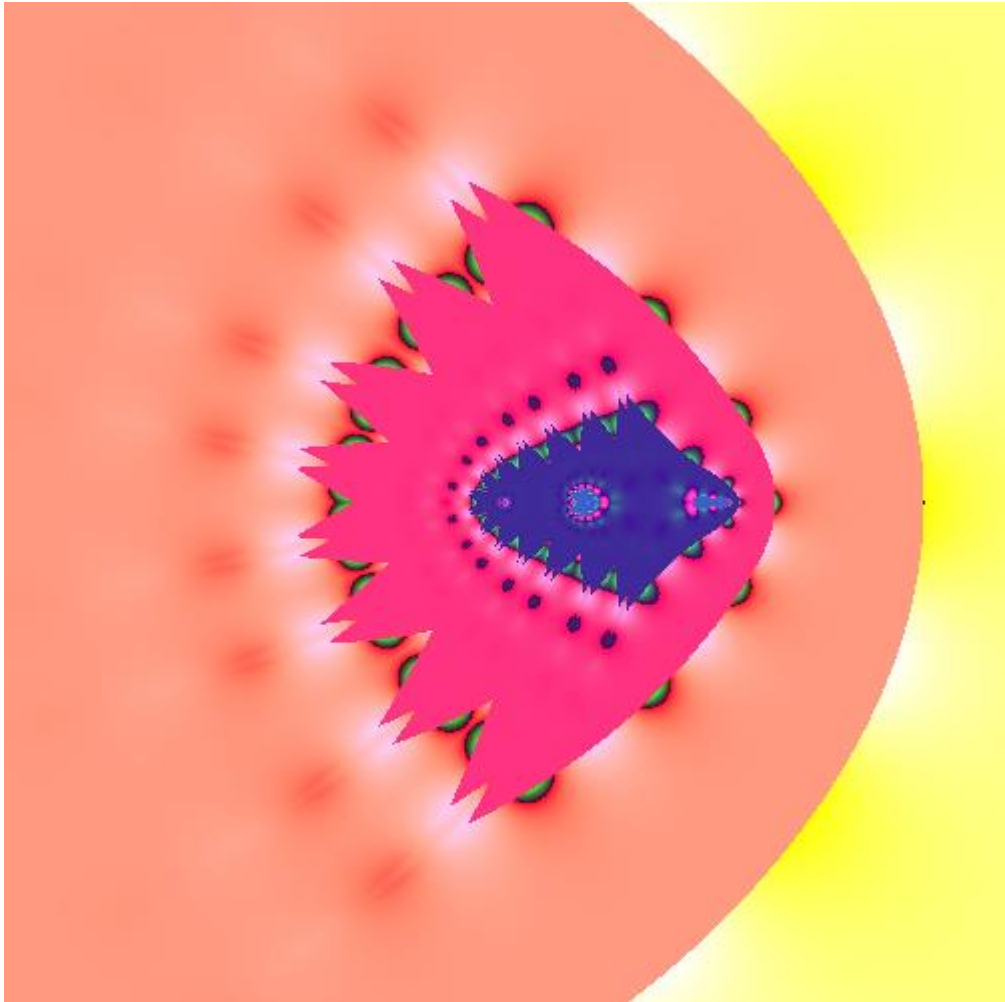


Figure 6.

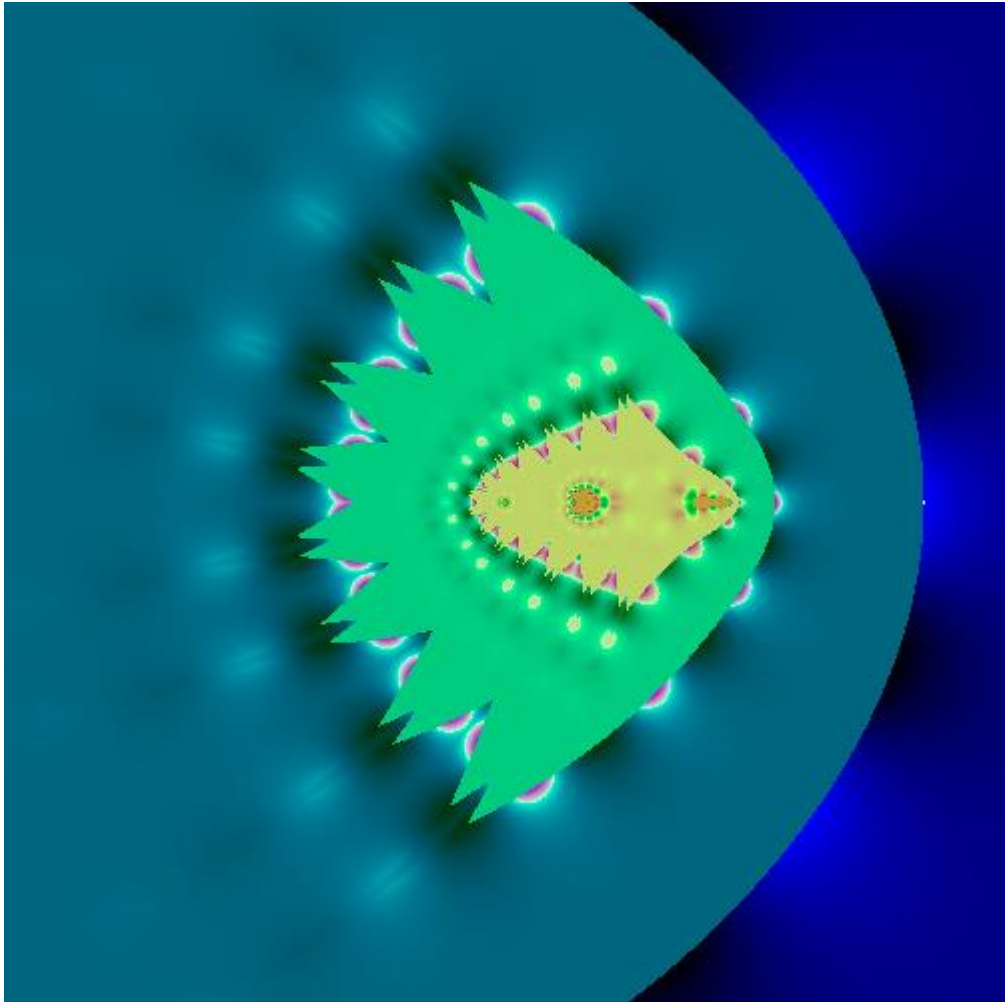


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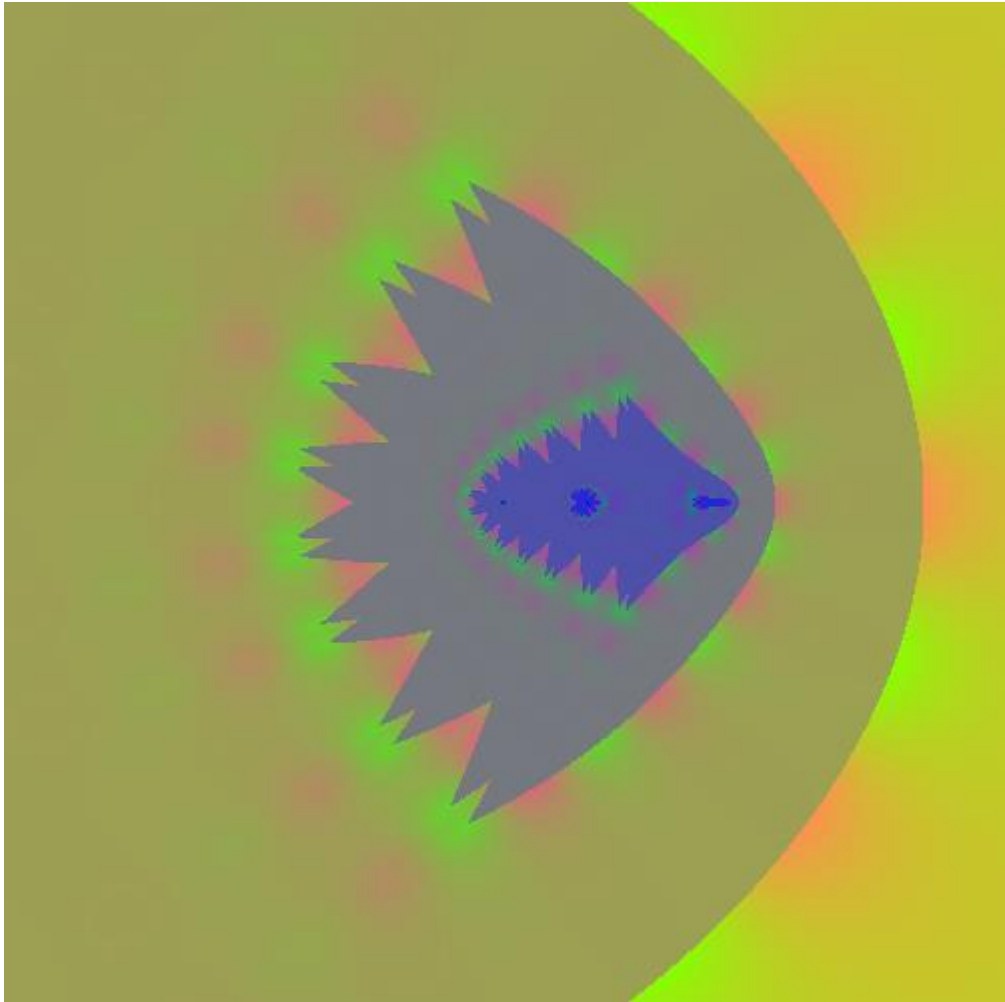


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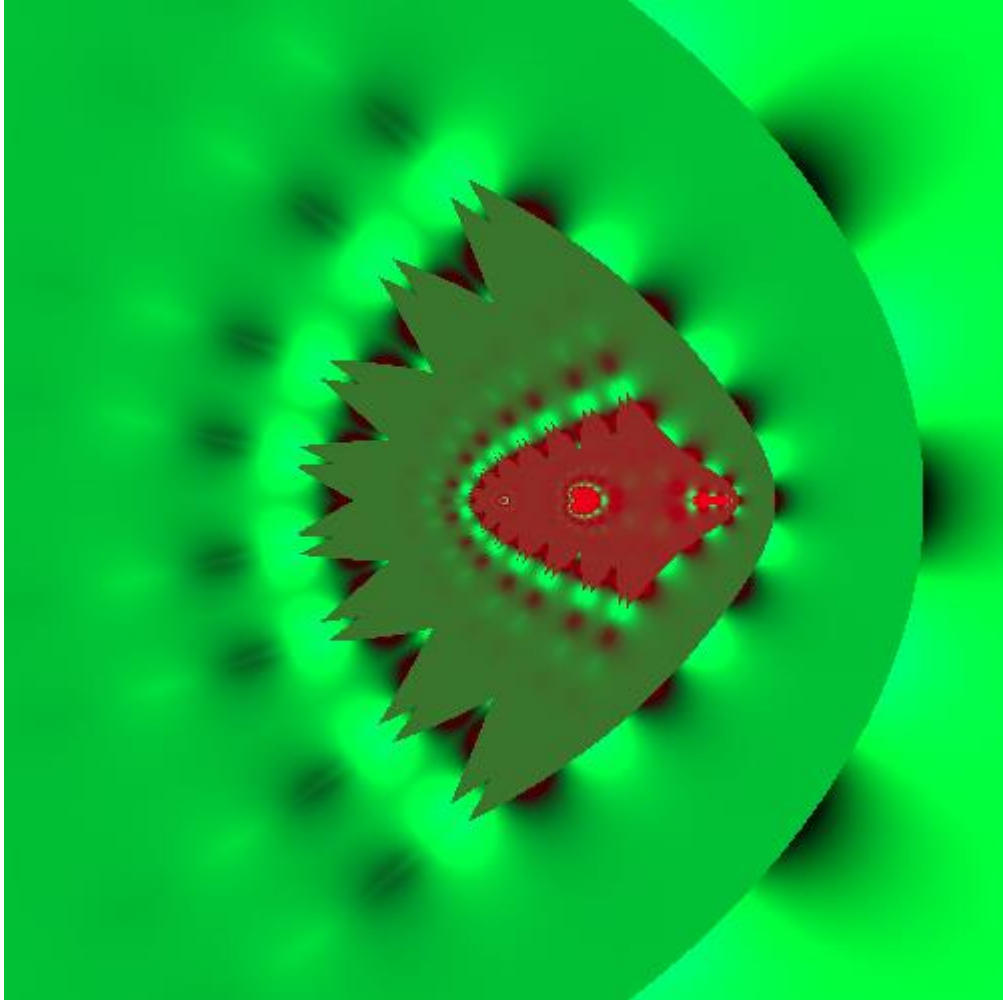


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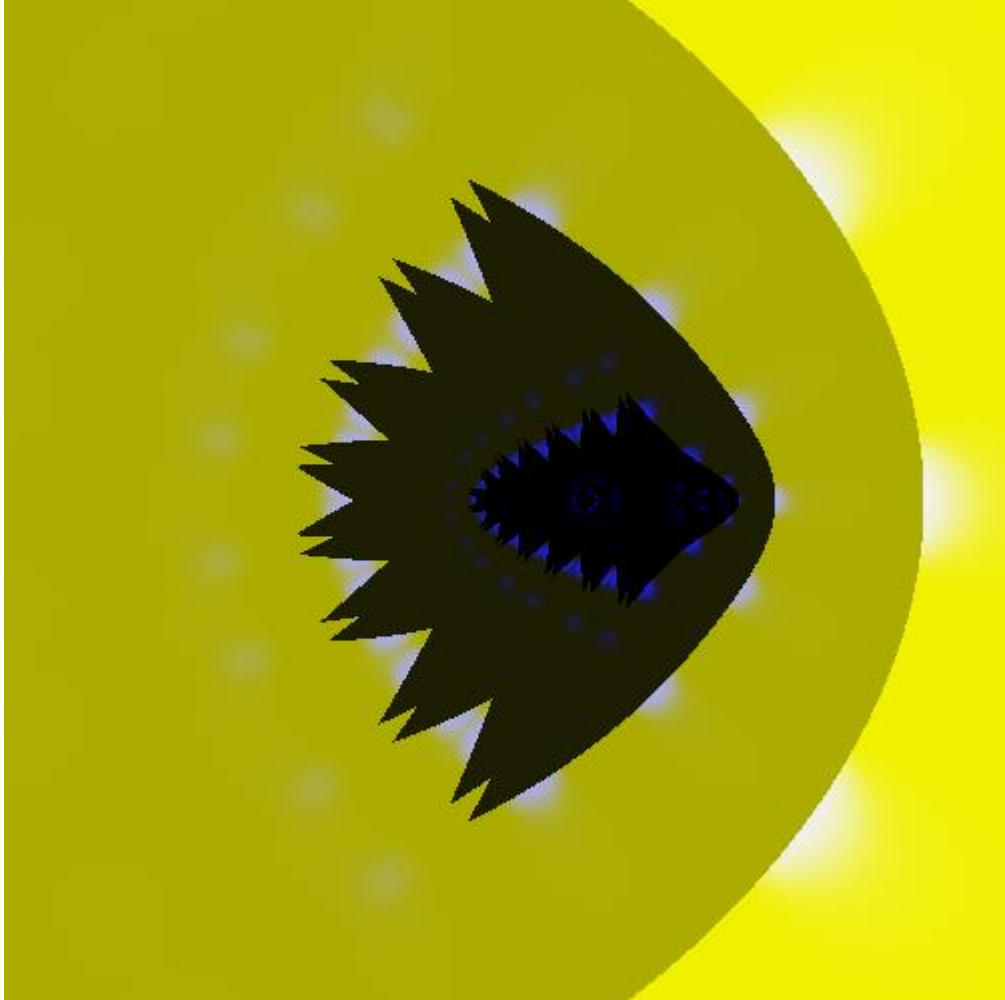


Figure 10.

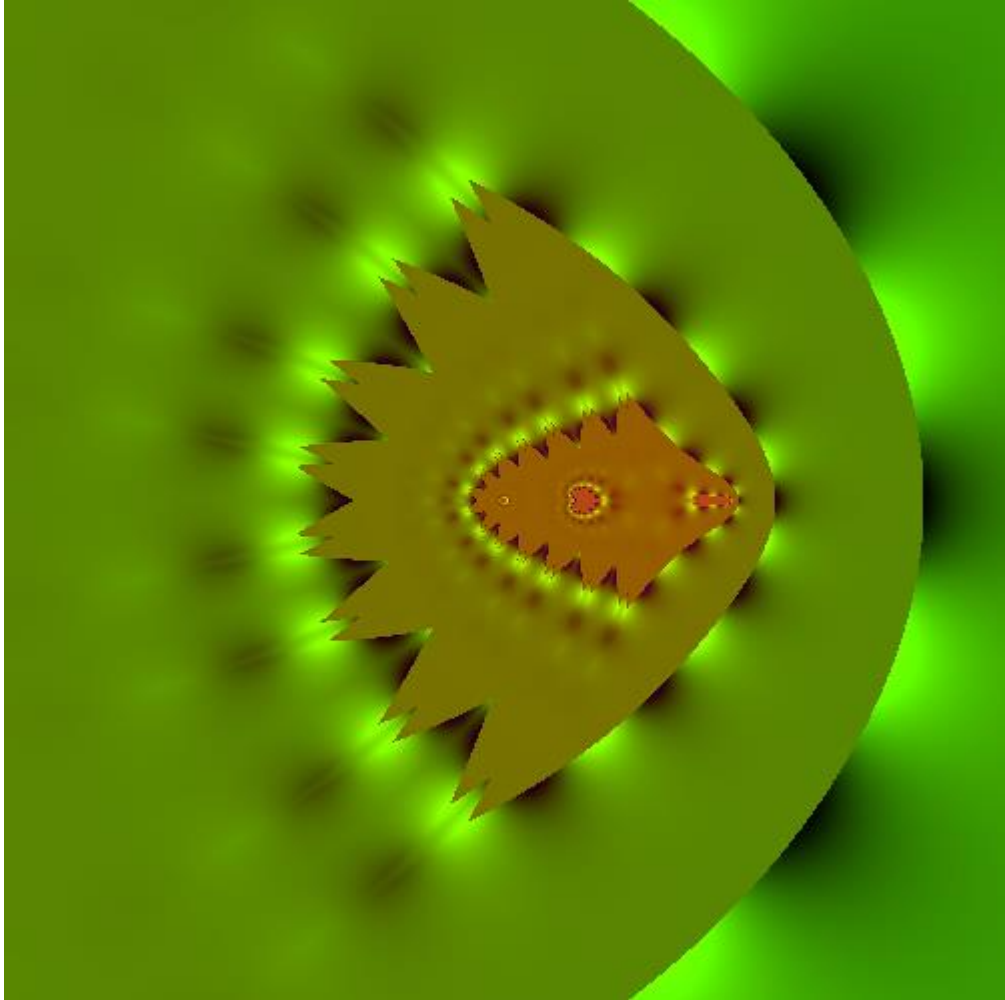


Figure 11.

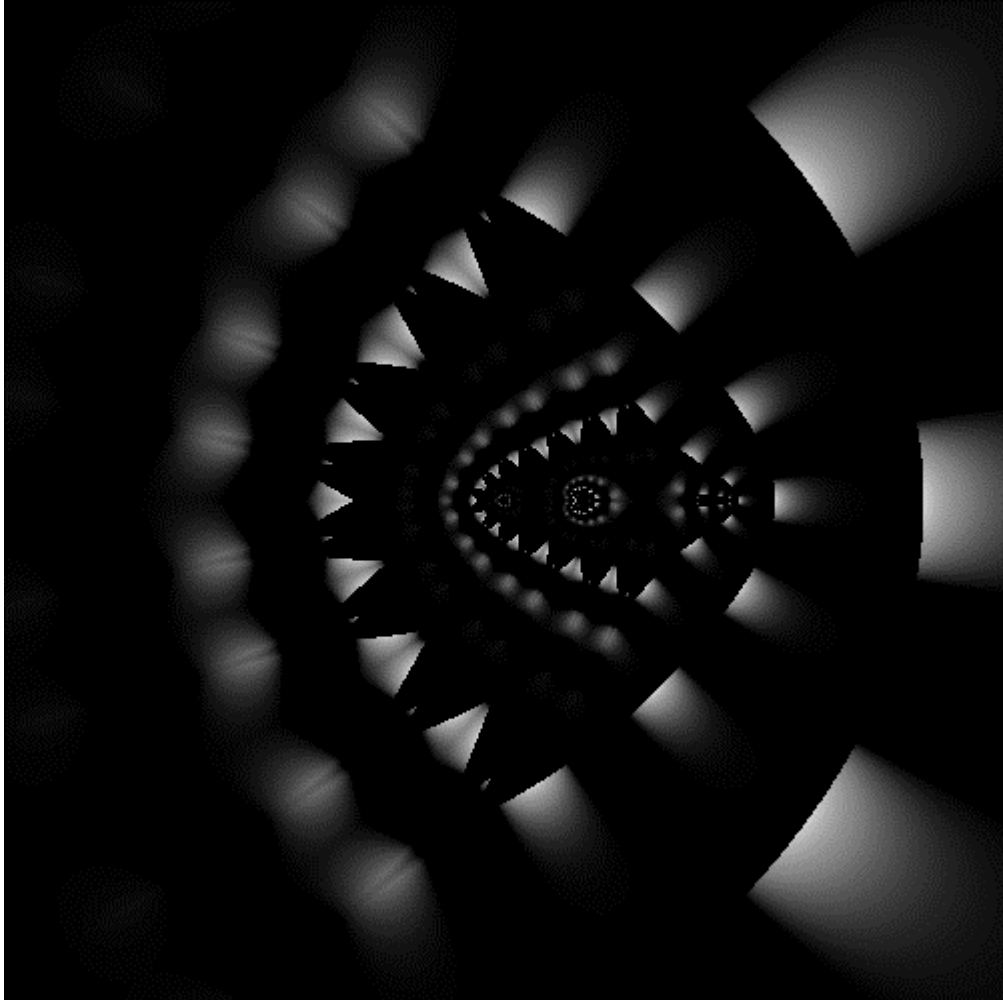


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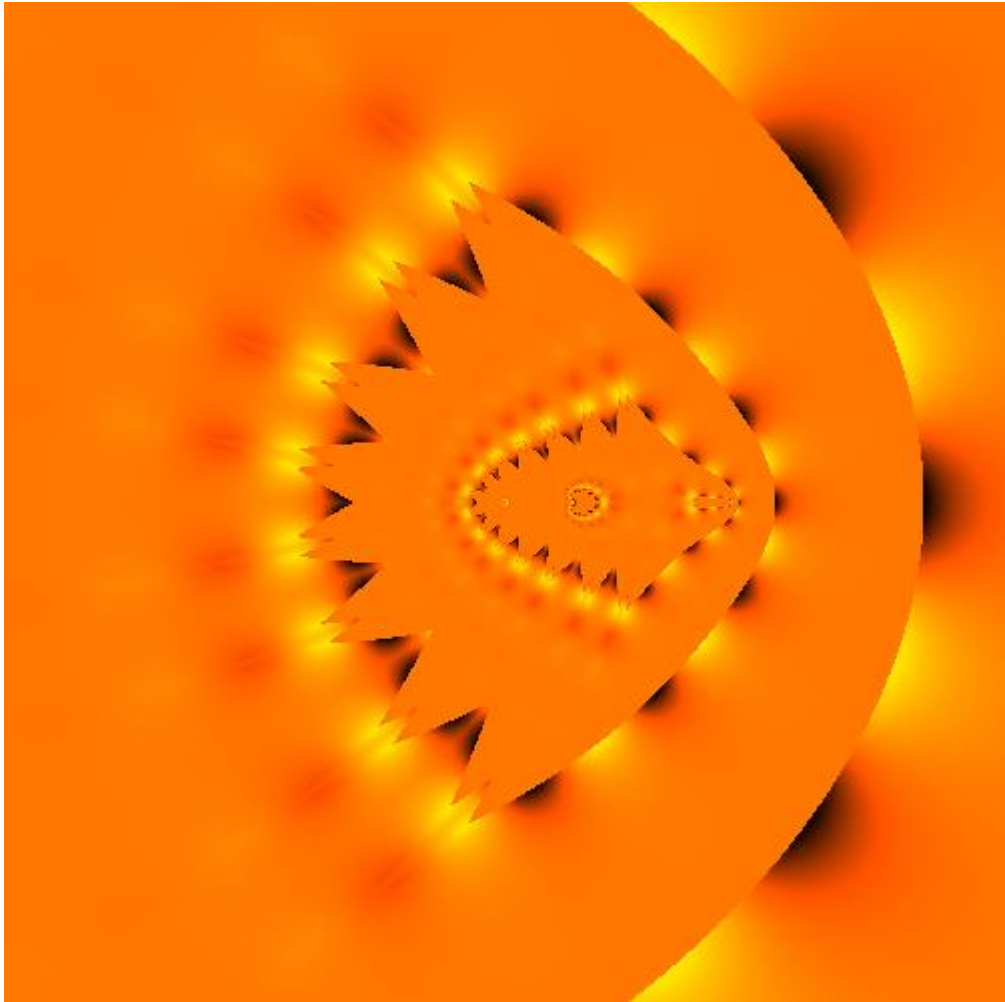


Figure 13

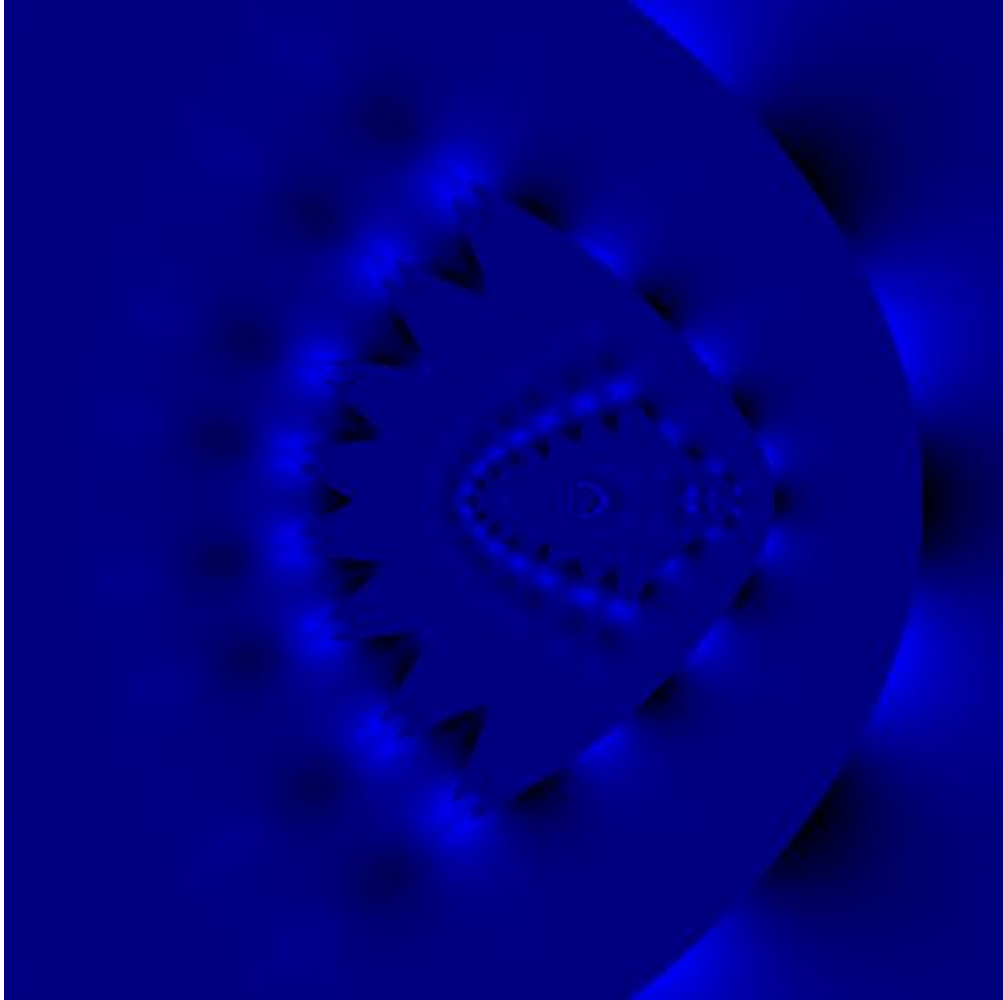


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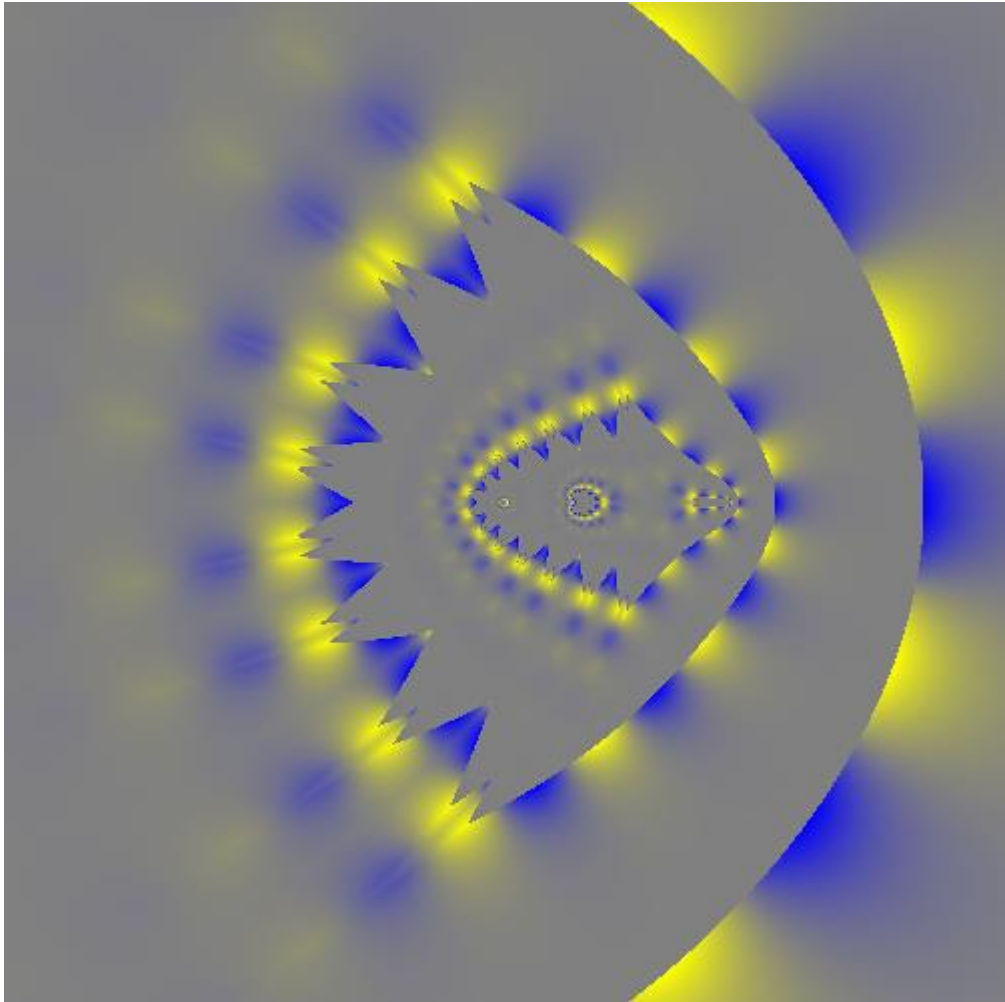


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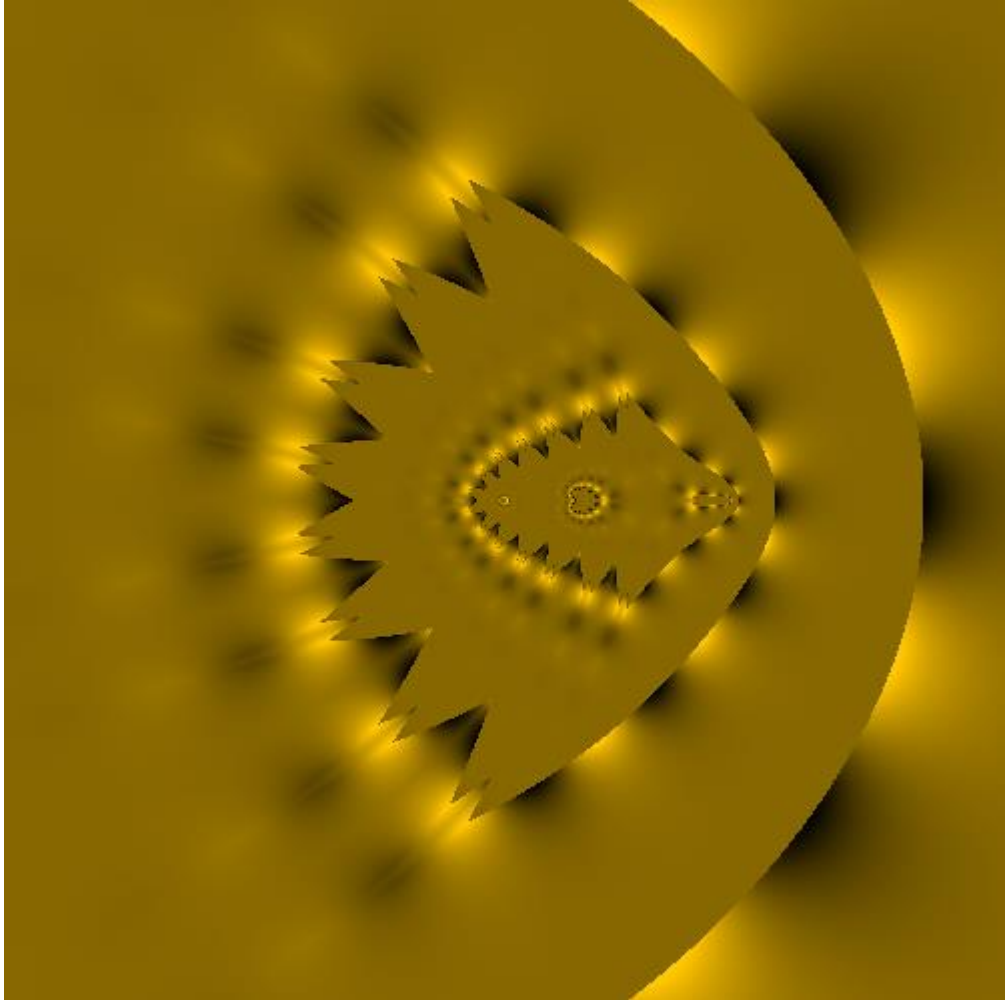


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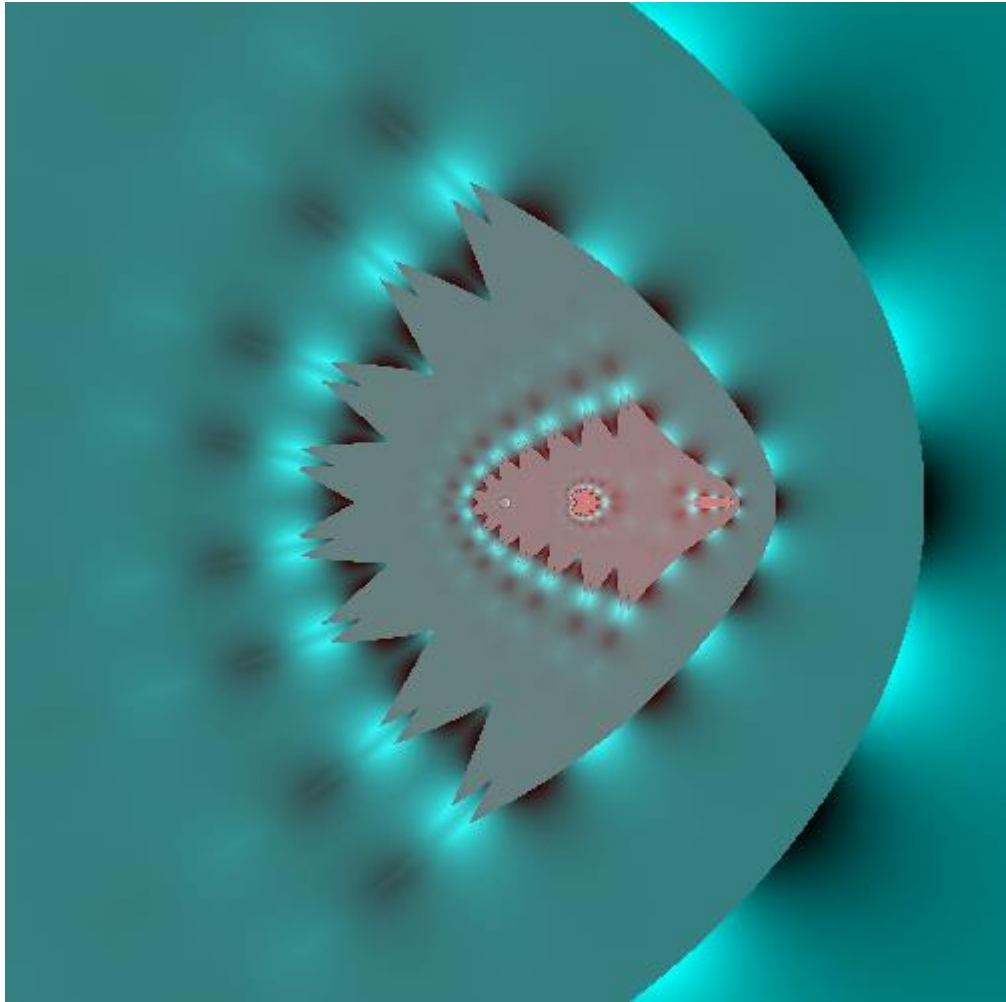


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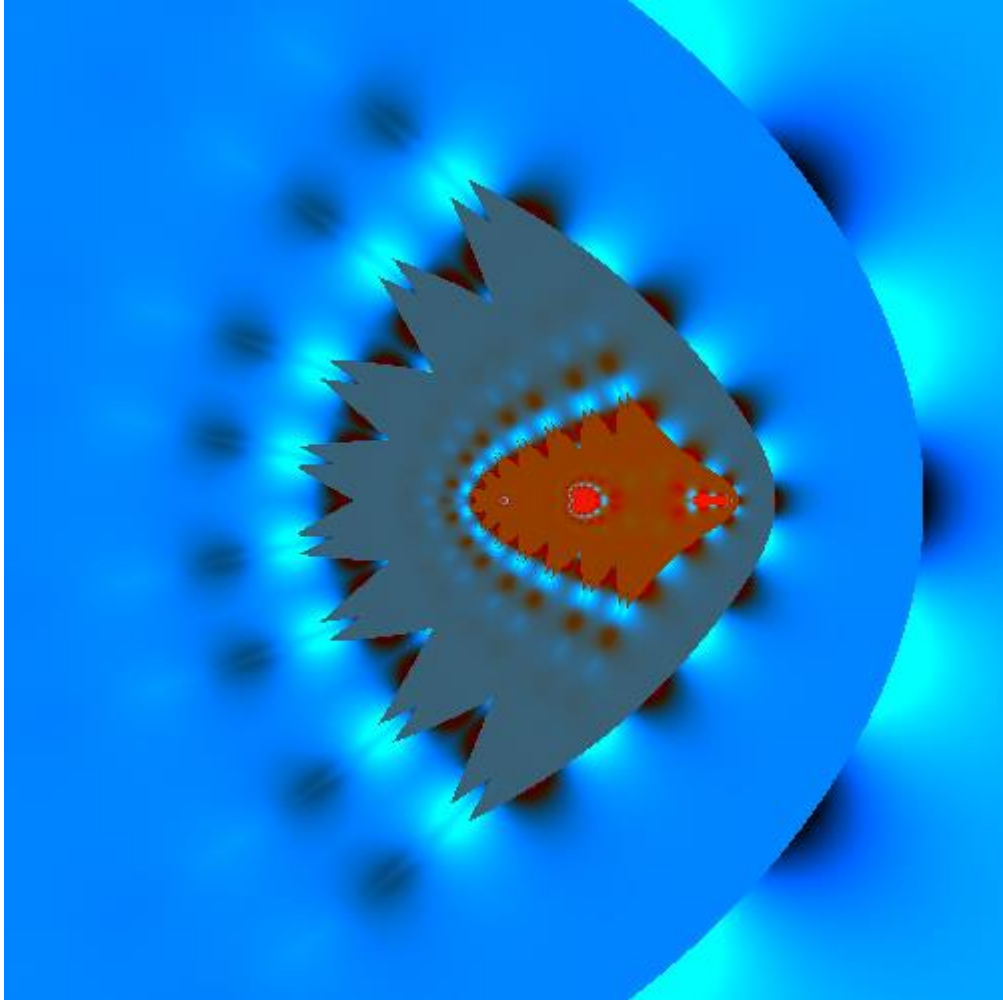


Figure 18.

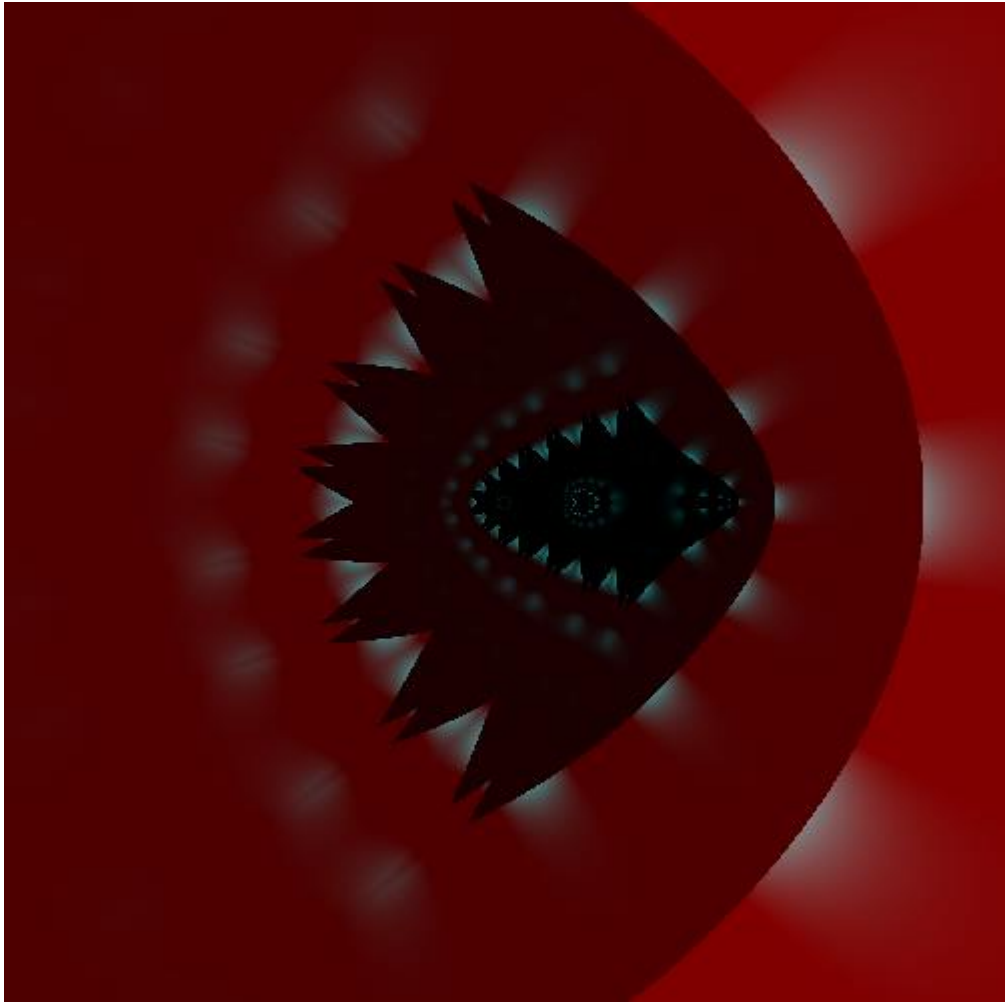


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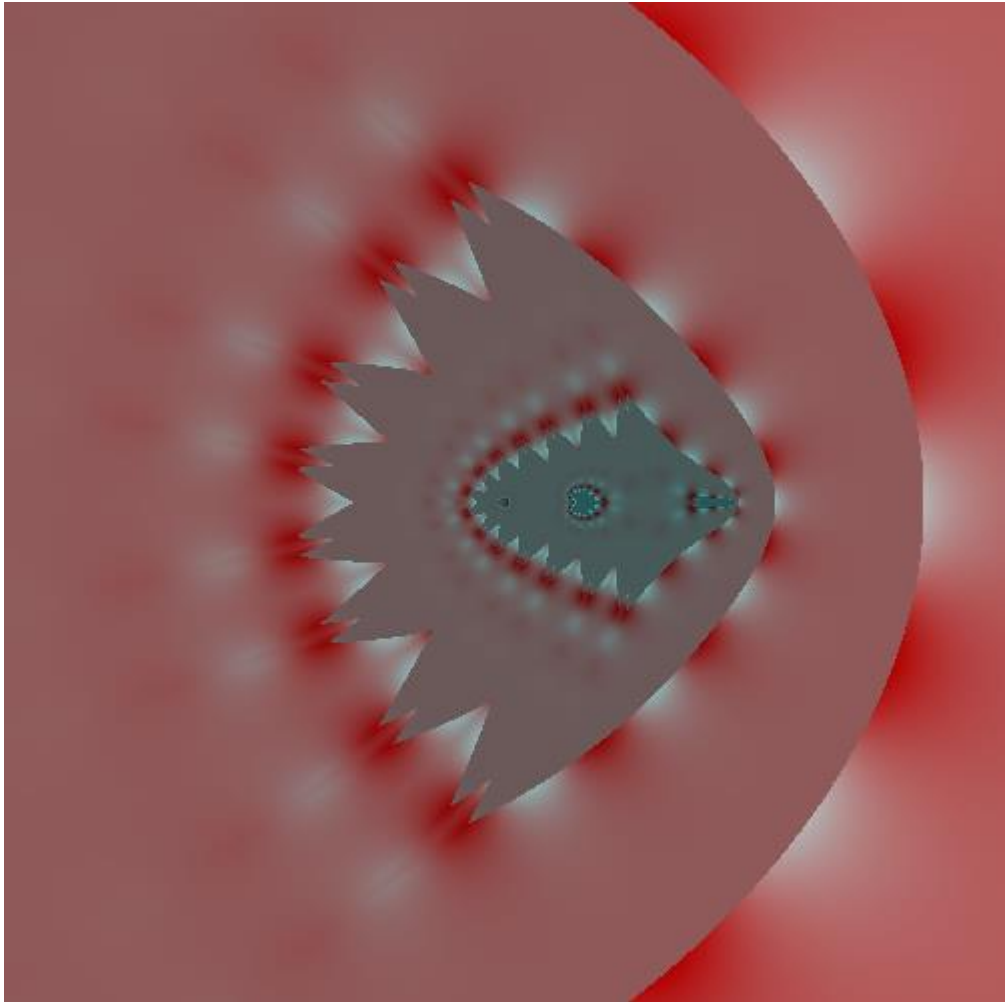


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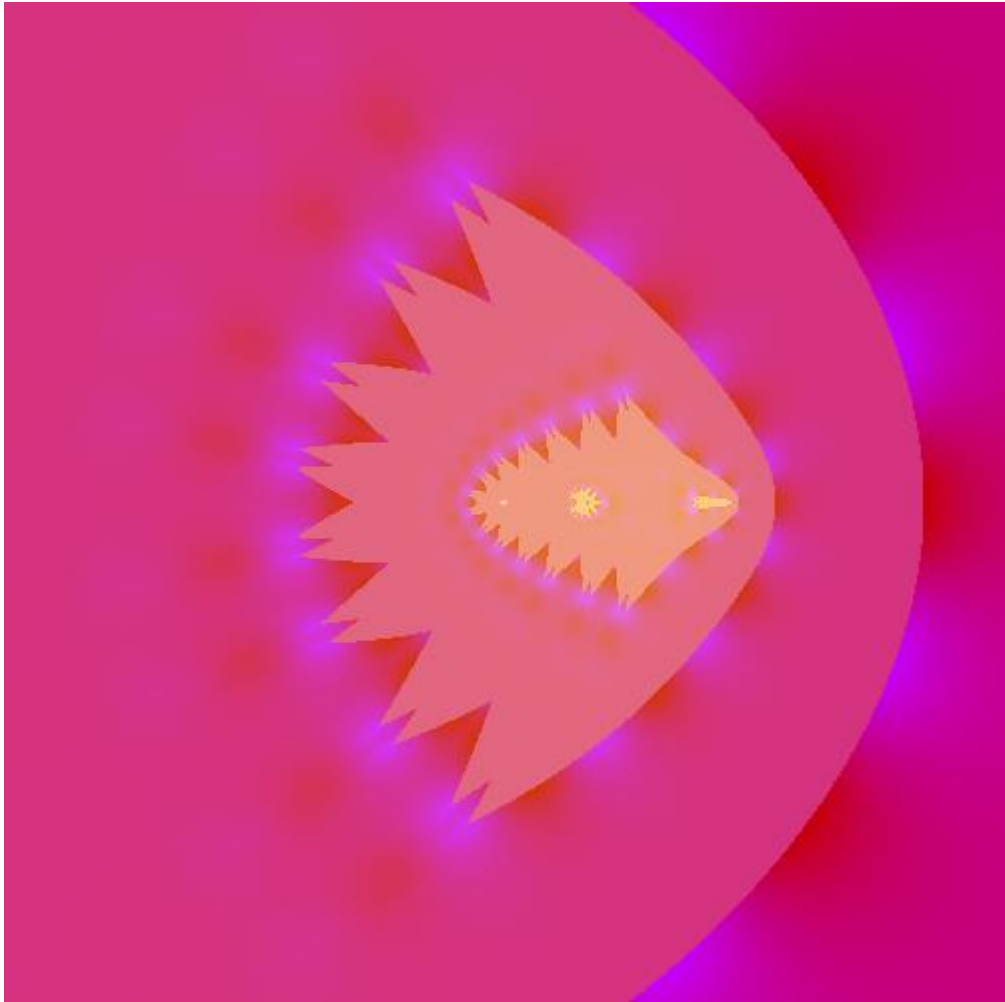


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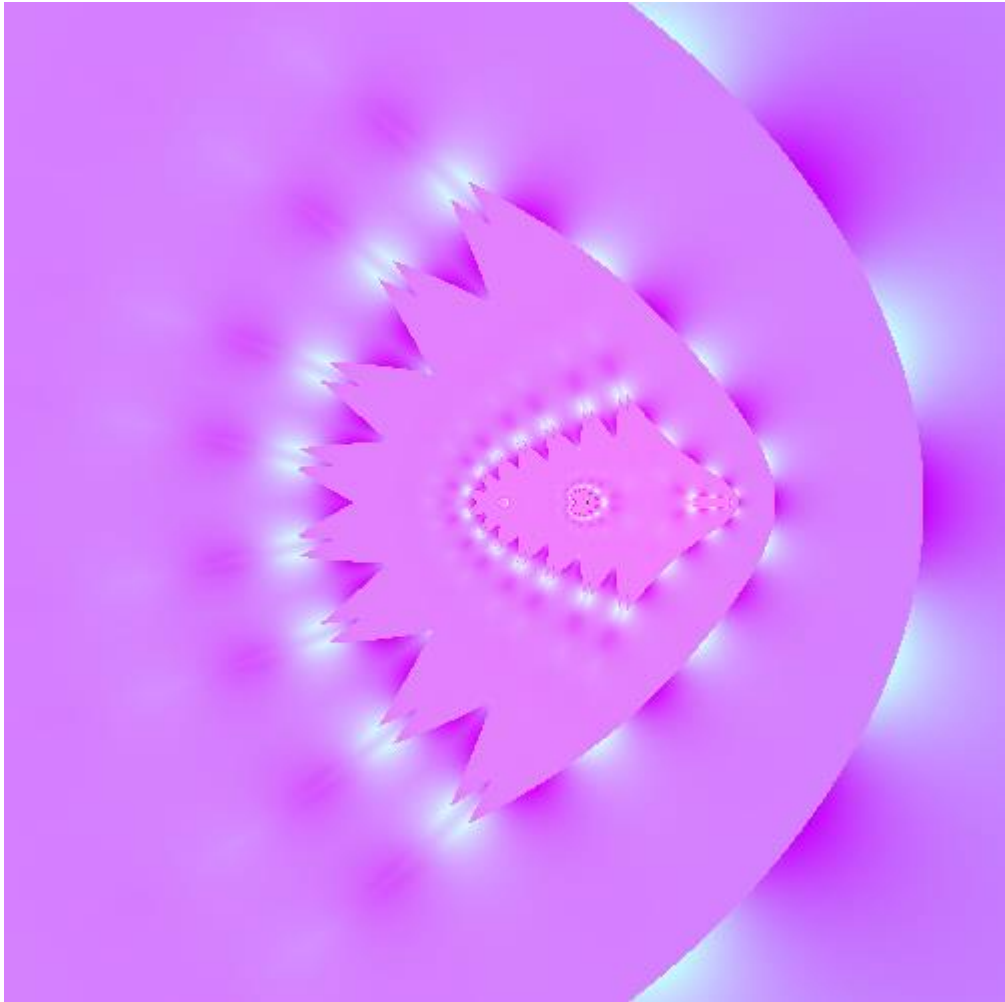


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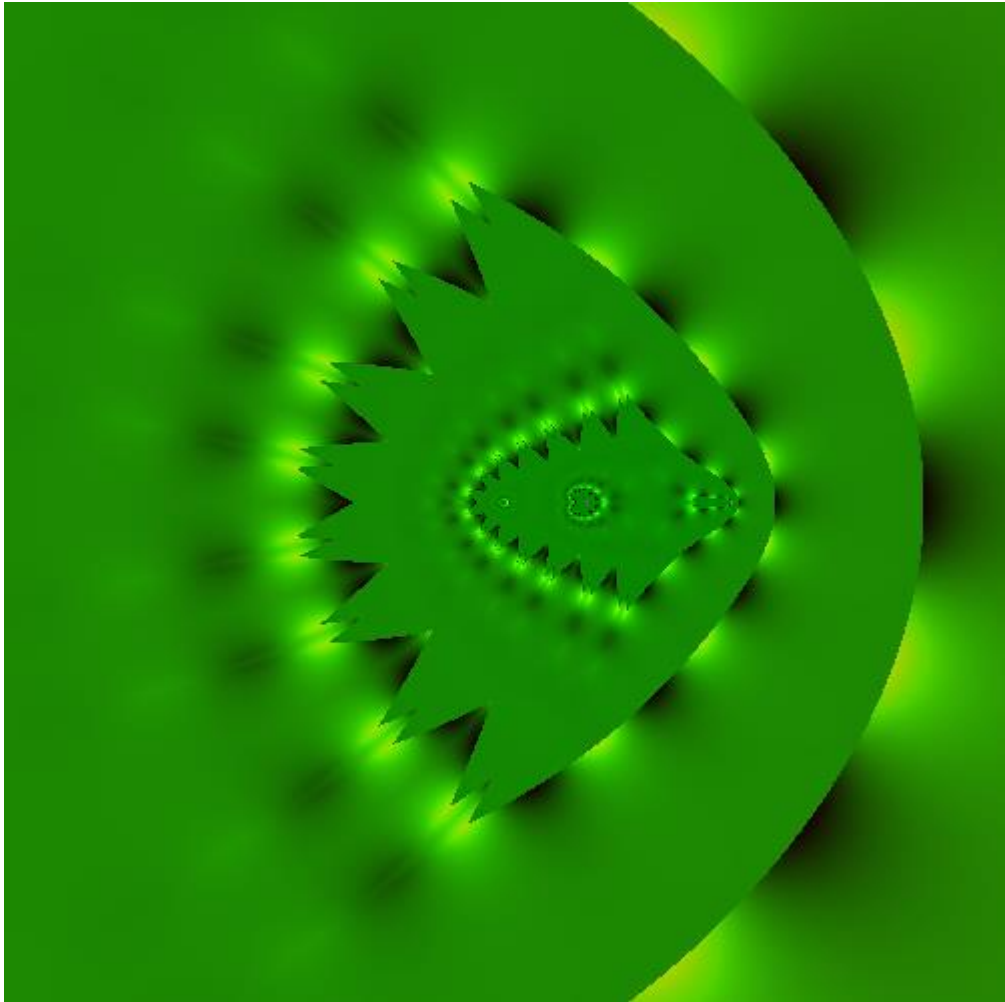


Figure 23.

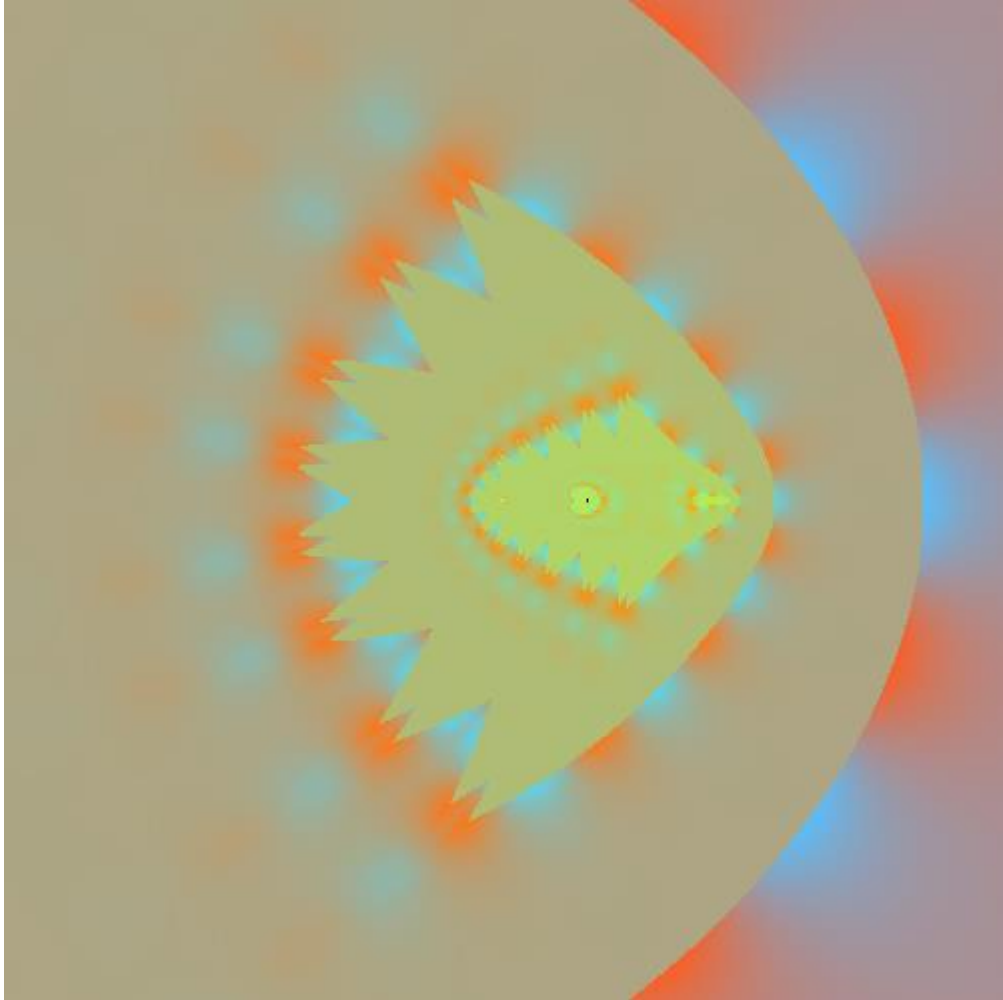


Figure 24.

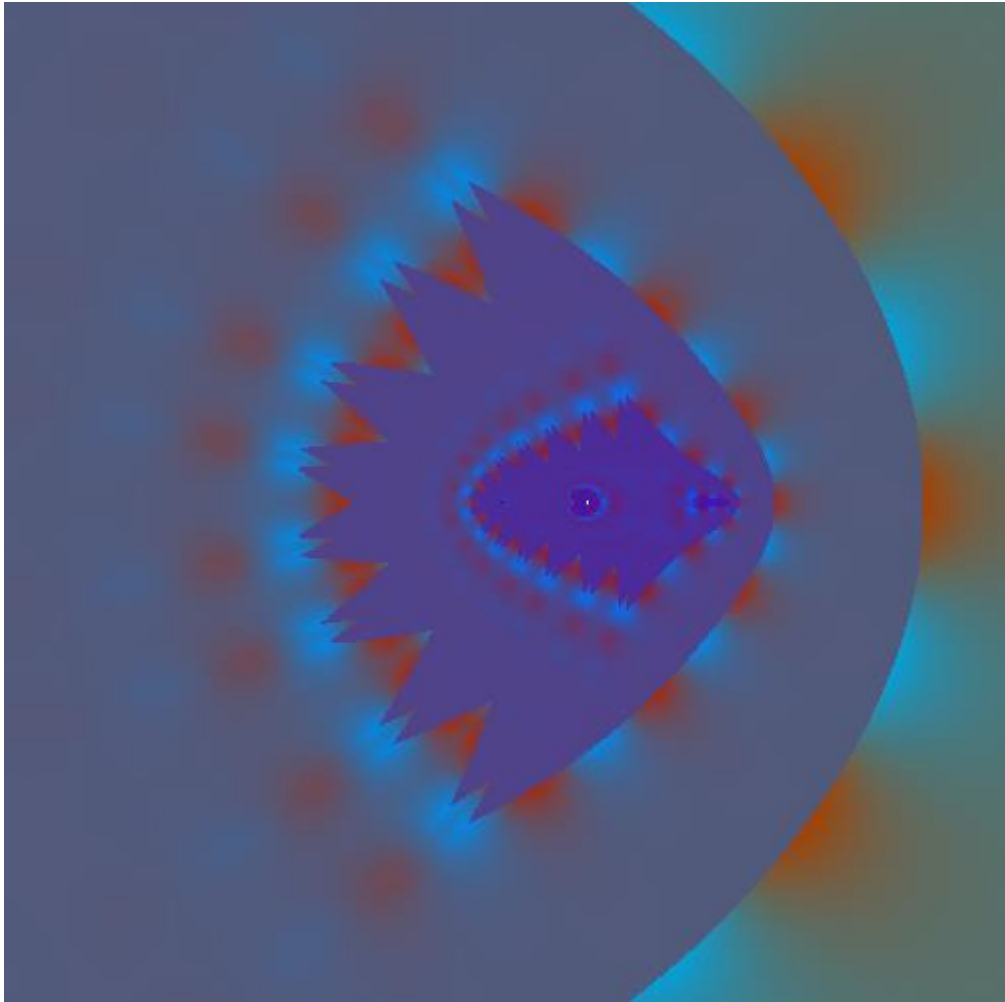


Figure 25.

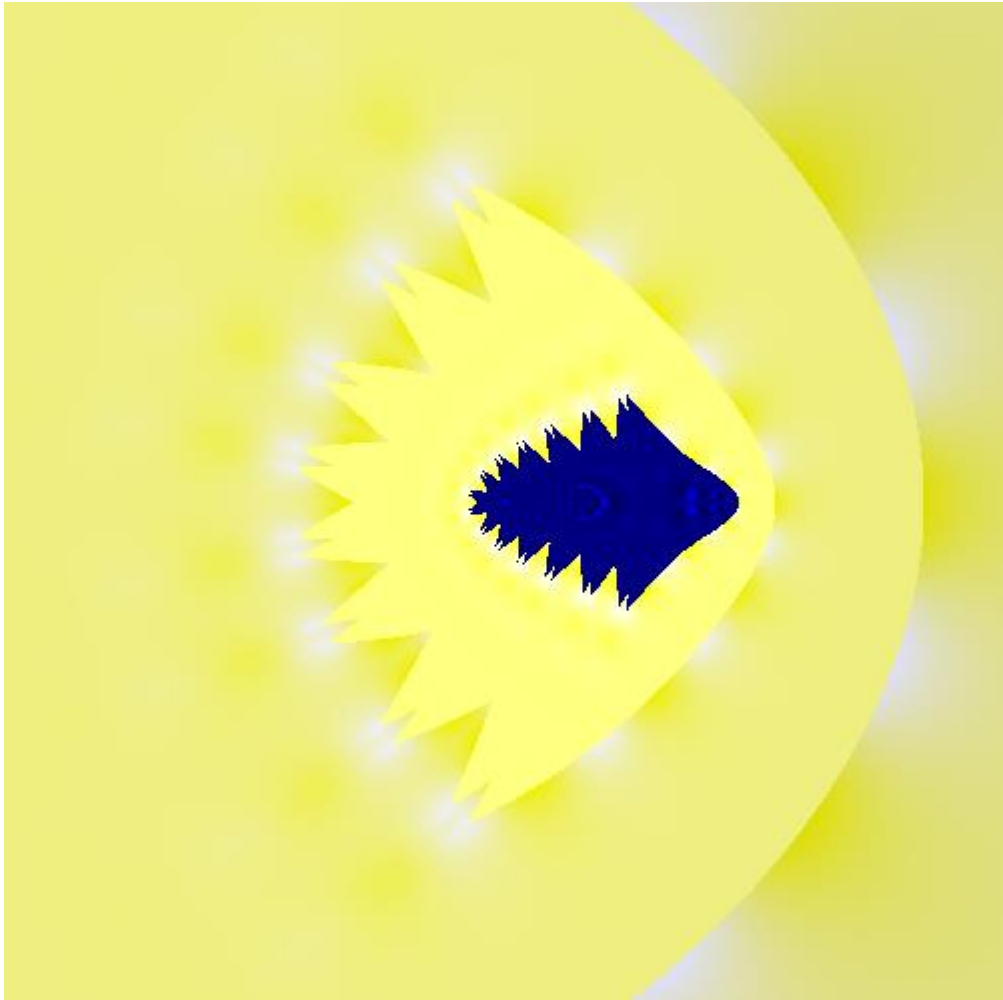


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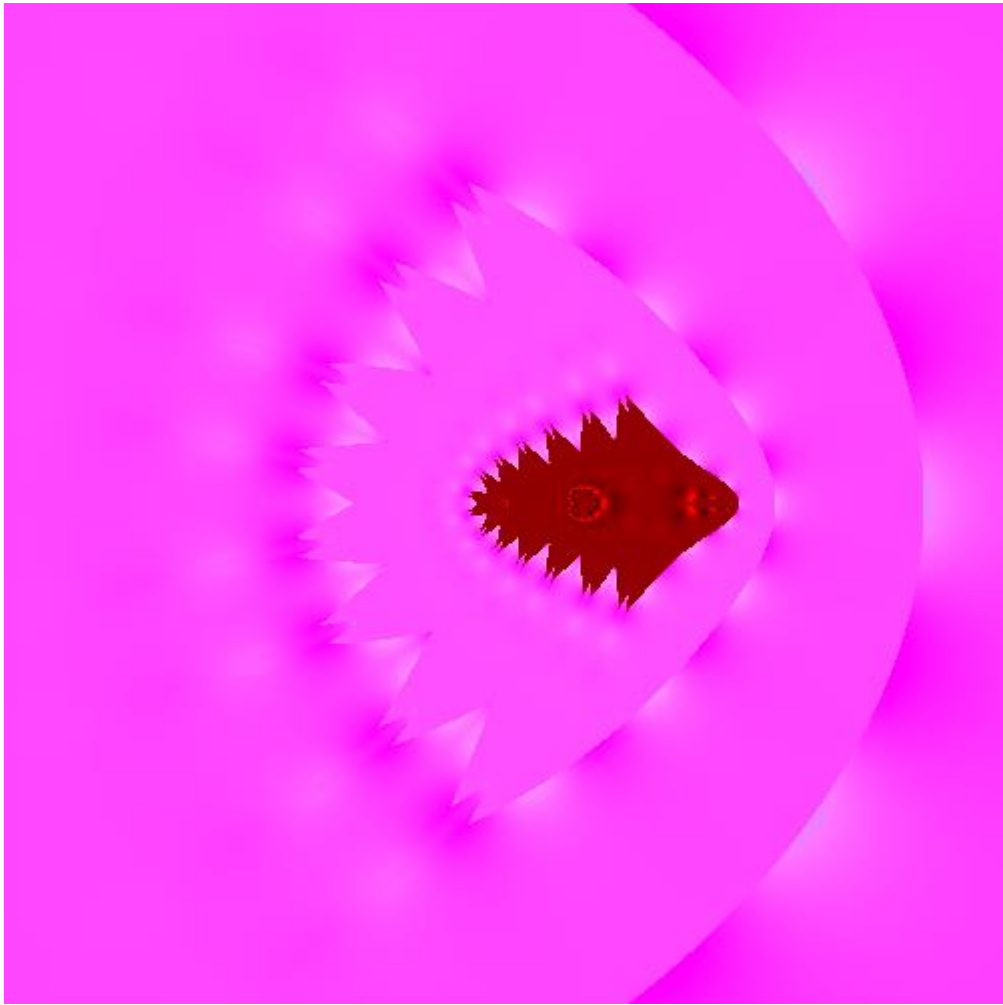


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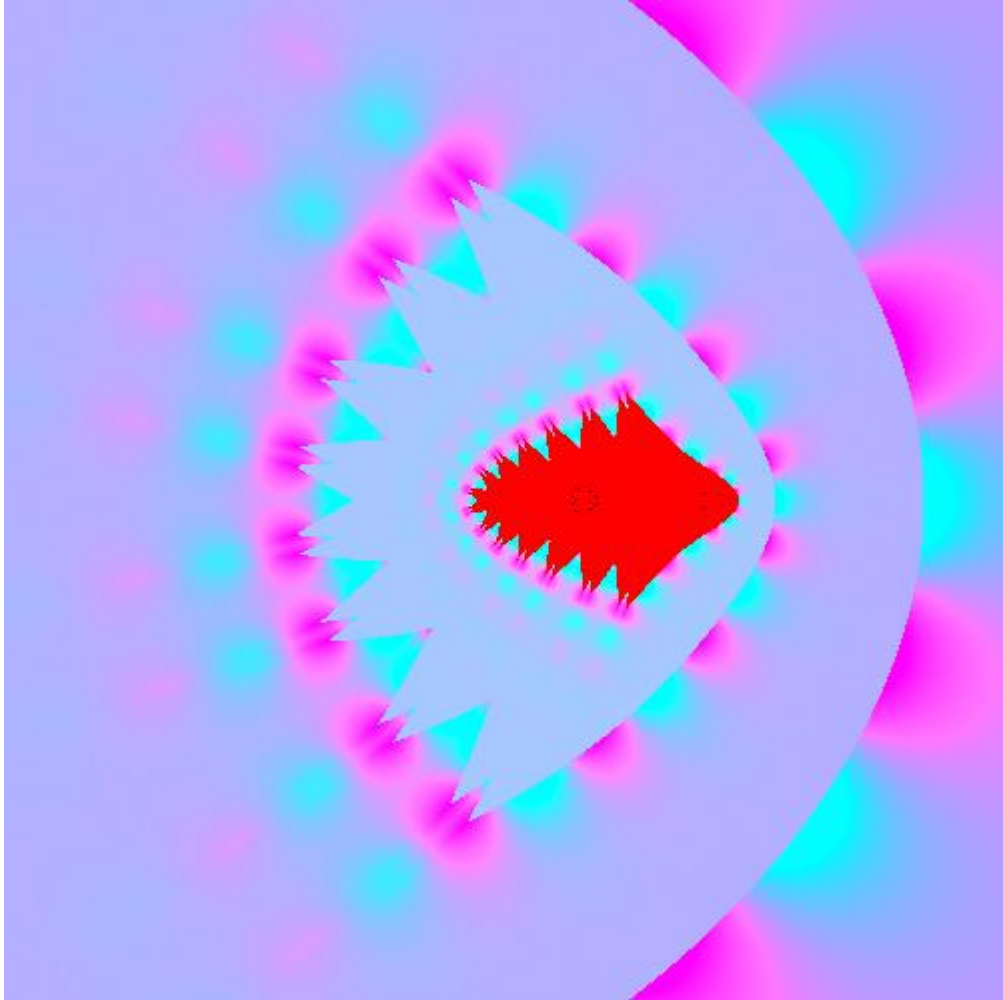


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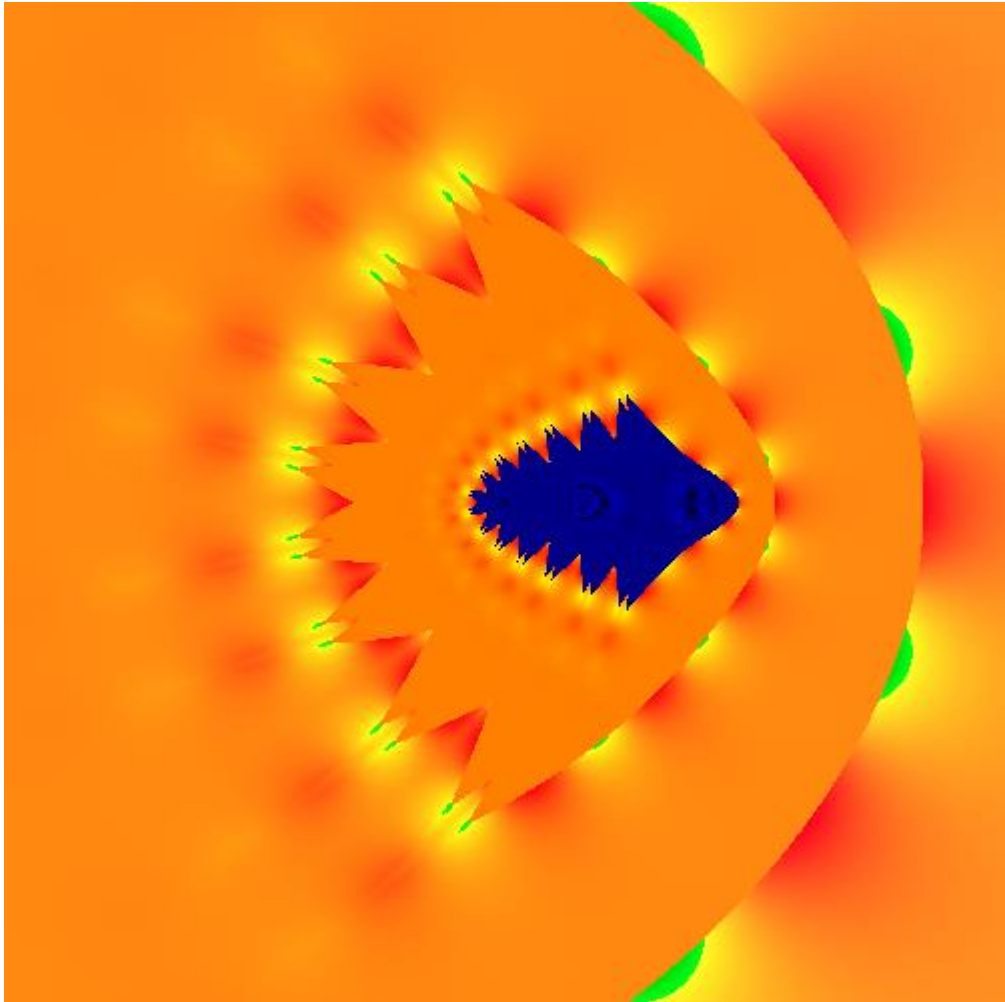


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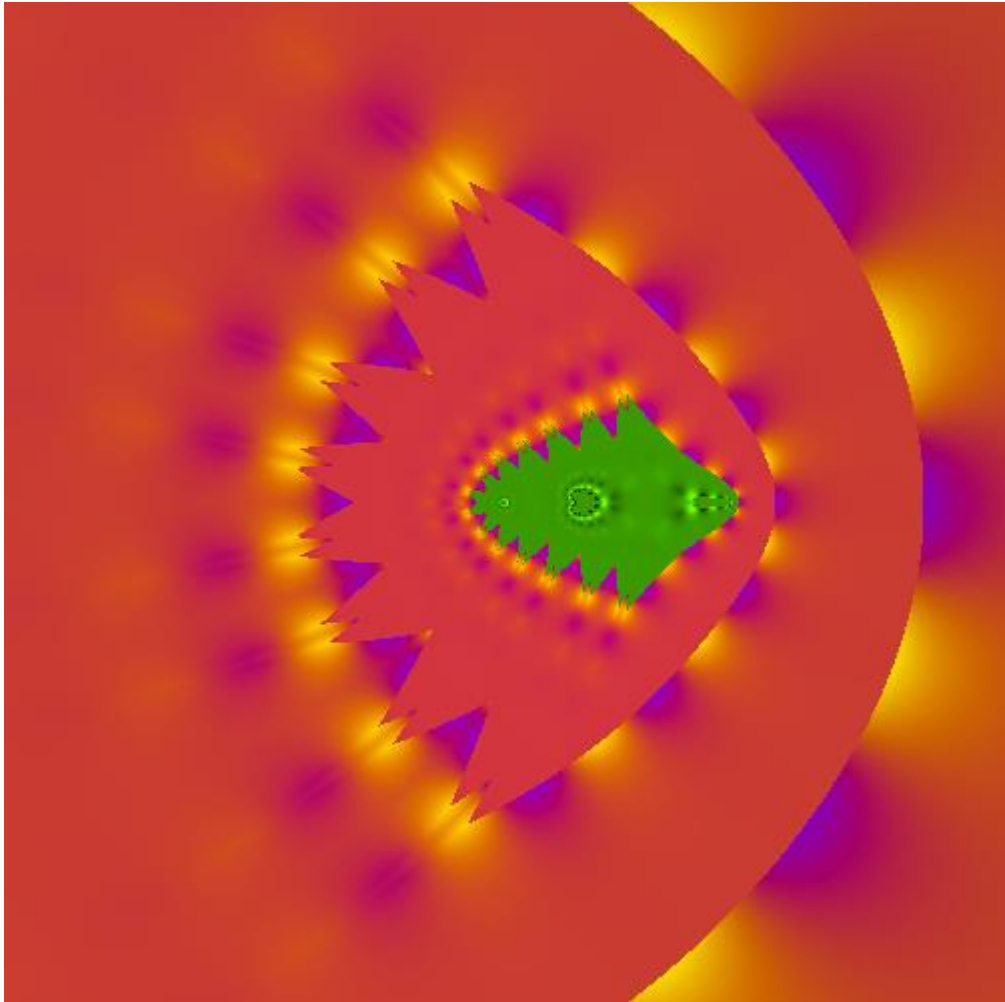


Figure 30.

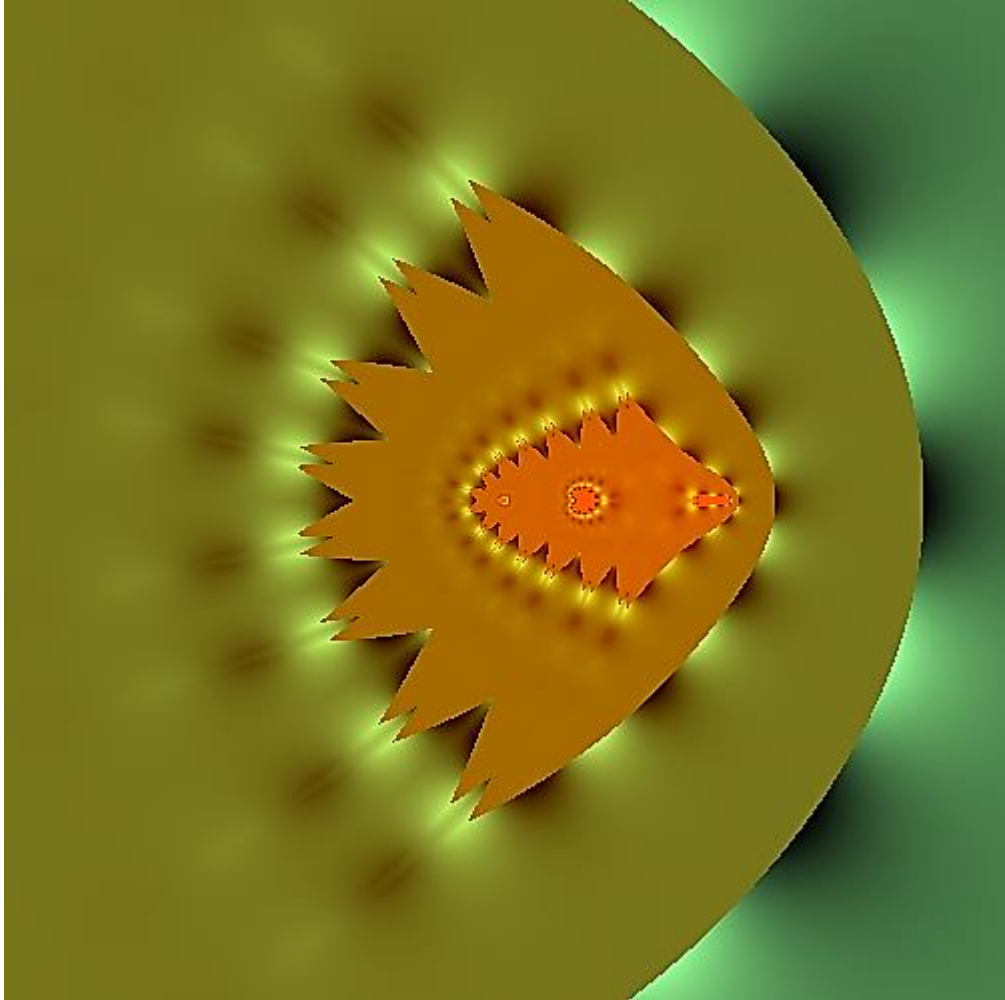


Figure 31.

References

1. Barnsley, M.F. and Rising, H.: *Fractals Everywhere*, 2nd ed. Boston, MA: Academic Press, 1993.
2. Bunde, A. and Havlin, S.: *Fractals and Disordered Systems*, 2nd ed. New York: Springer-Verlag, 1996.
3. Bunde, A. and Havlin, S.: *Fractals in Science*. New York: Springer-Verlag, 1994.
4. Cayley, A.: The Newton – Fourier imaginary problema, *Amer. J. Math.* 2, 1879, 97.
5. Cayley, A.: Applications of the Newton – Fourier Method to an imaginary root of an equation, *Quart. J. of Pure and Applied Math.* 16, 1879, 179-185.
6. Devaney, R.L.: *Complex Dynamical Systems: The Mathematics Behind the Mandelbrot and Julia Sets*. Providence, RI: Amer. Math. Soc., 1994.
7. Fatou, P.: Sur les équations fonctionnelles, *Bull. Sci. Math. France*, 47,1919,161-271.
8. Fatou, P.: Sur les équations fonctionnelles (Deuxième mémoire), *Bull. Sci. Math. France*, 48,1920,33-94.
9. Fatou, P.: Sur les équations fonctionnelles (Deuxième mémoire), *Bull. Sci. Math. France*, 48,1920,208-314.
10. Mandelbrot, B.: *Fractals: Form, Chance, & Dimension*. San Francisco, CA: W.H. Freeman, 1977.
11. Mandelbrot, B.: *The Fractal Geometry of Nature*. New York: W.H. Freeman, 1983.
12. Milnor, J.: *Dynamics in One Complex Variable: Introductory Lectures*, Vieweg,1999.
13. Peitgen, H.-O., Jurgens, H. and Saupe, D.: *Chaos and Fractals: New Frontiers of Science*. New York: Springer-Verlag, 1992.
14. Pickover, C.A.: *Fractal Horizons: The Future Use of Fractals*. New York: St. Martin's Press, 1996.
15. Schröder, E.: Über unendlich viele Algorithmen zur Auosung der Gleichungen, *Math. Ann.* 2, 1870 , 317-365.
16. Schröder, E.: Über iterite funktionen, *Math. Ann.* 3, 1871, 296-322.