

ELEMENTARY FRACTALS

PART I

EDGAR VALDEBENITO

ABSTRACT

This note presents a collection of elementary Fractals.

12-11-2018 17:59:16

Introduction

Benoit Mandelbrot (1924-2010): Fractal Geometry

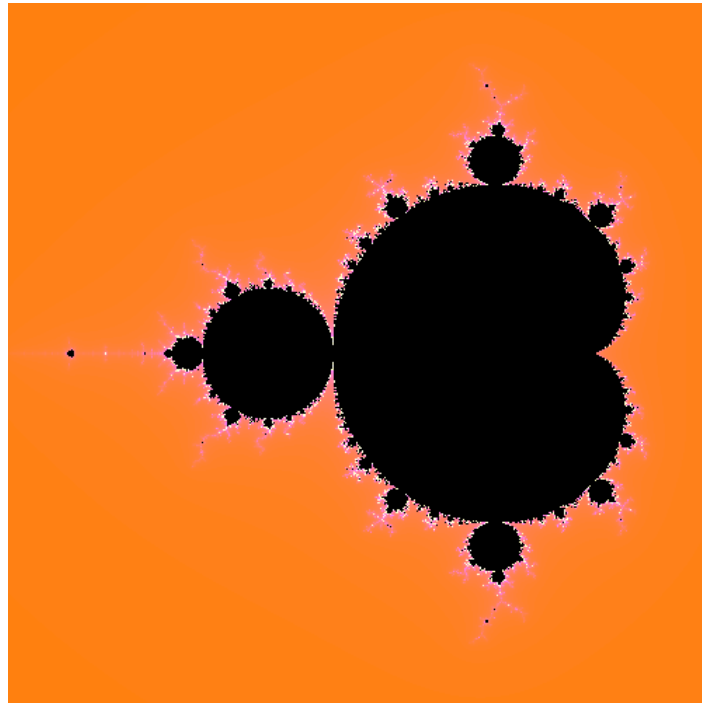


Figure 1. Fractal - Mandelbrot set.

Some Classic Fractals



Figure 2. Fractal - Plant

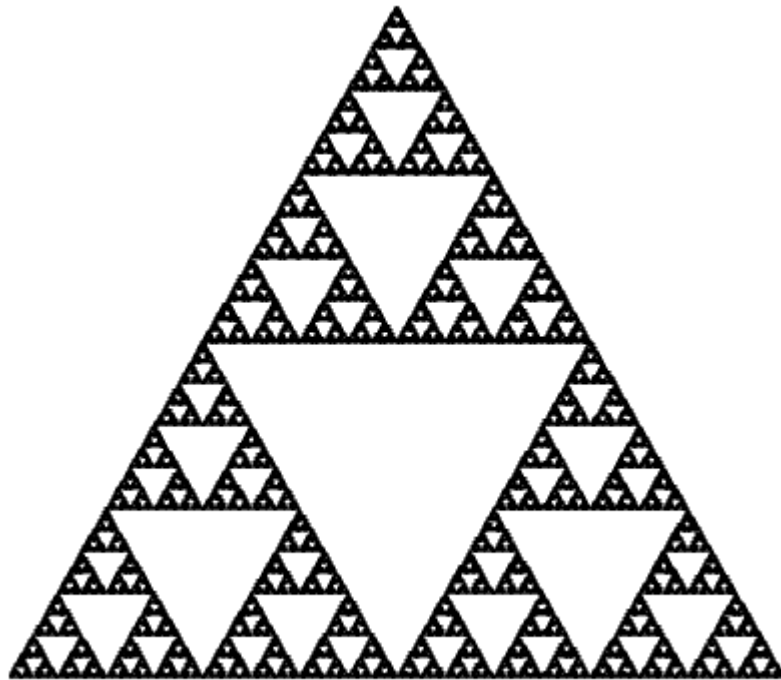


Figure 3. Fractal - Sierpinski Triangle

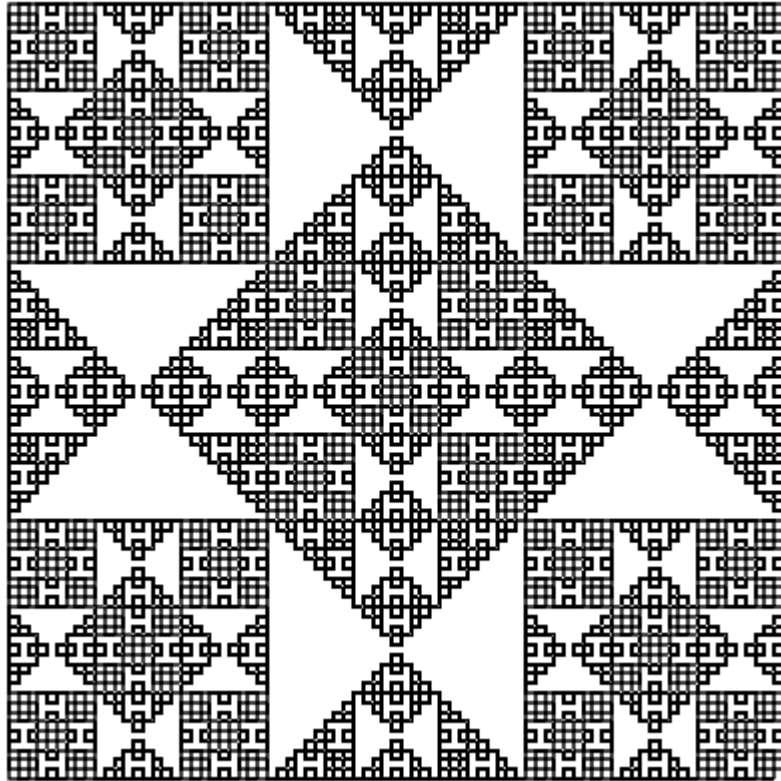


Figure 4. Fractal - Carpet

A Collection of Elementary Fractals

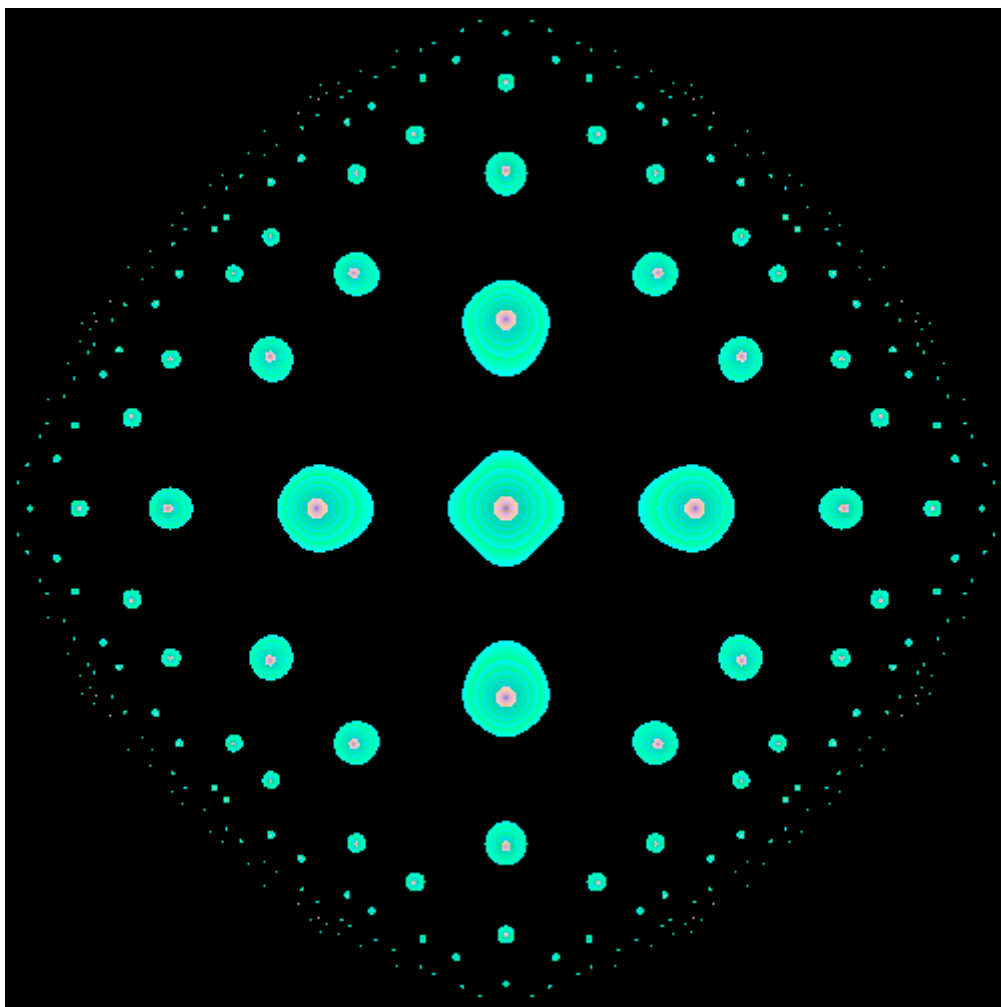


Figure 5.

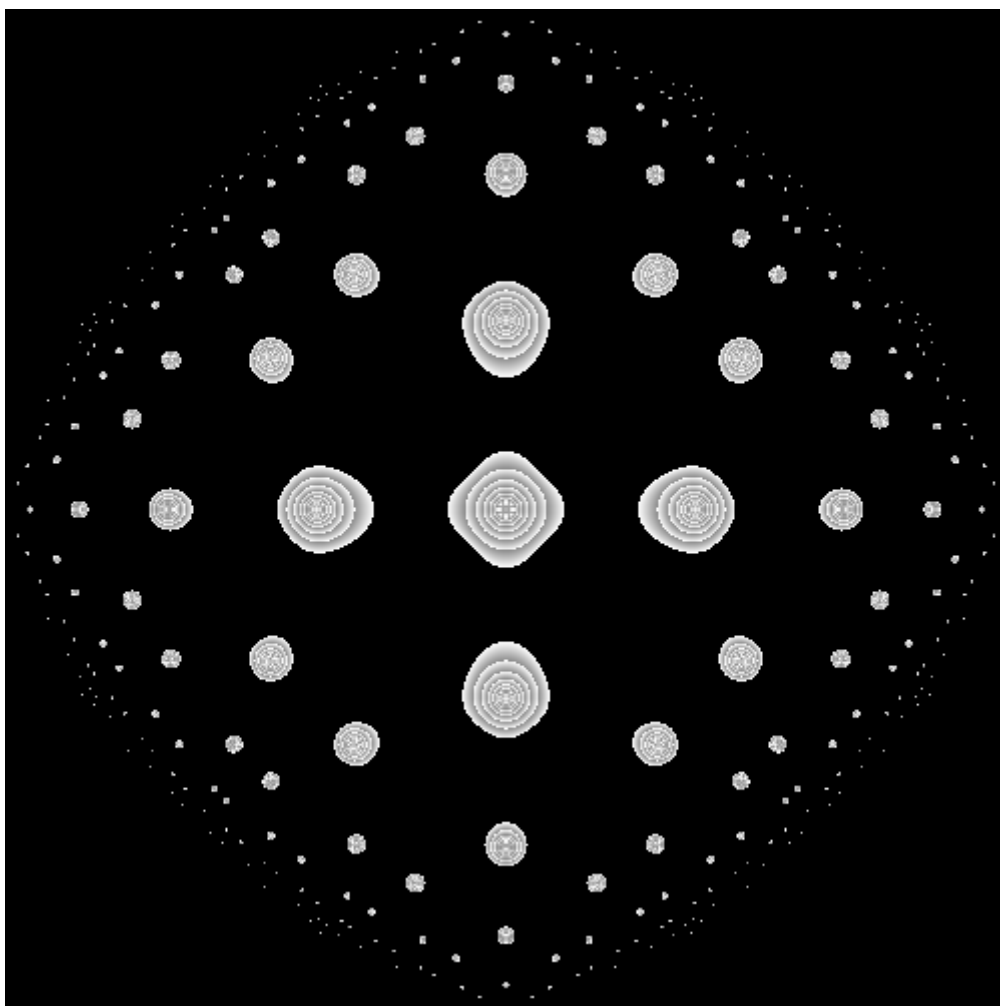


Figure 6.

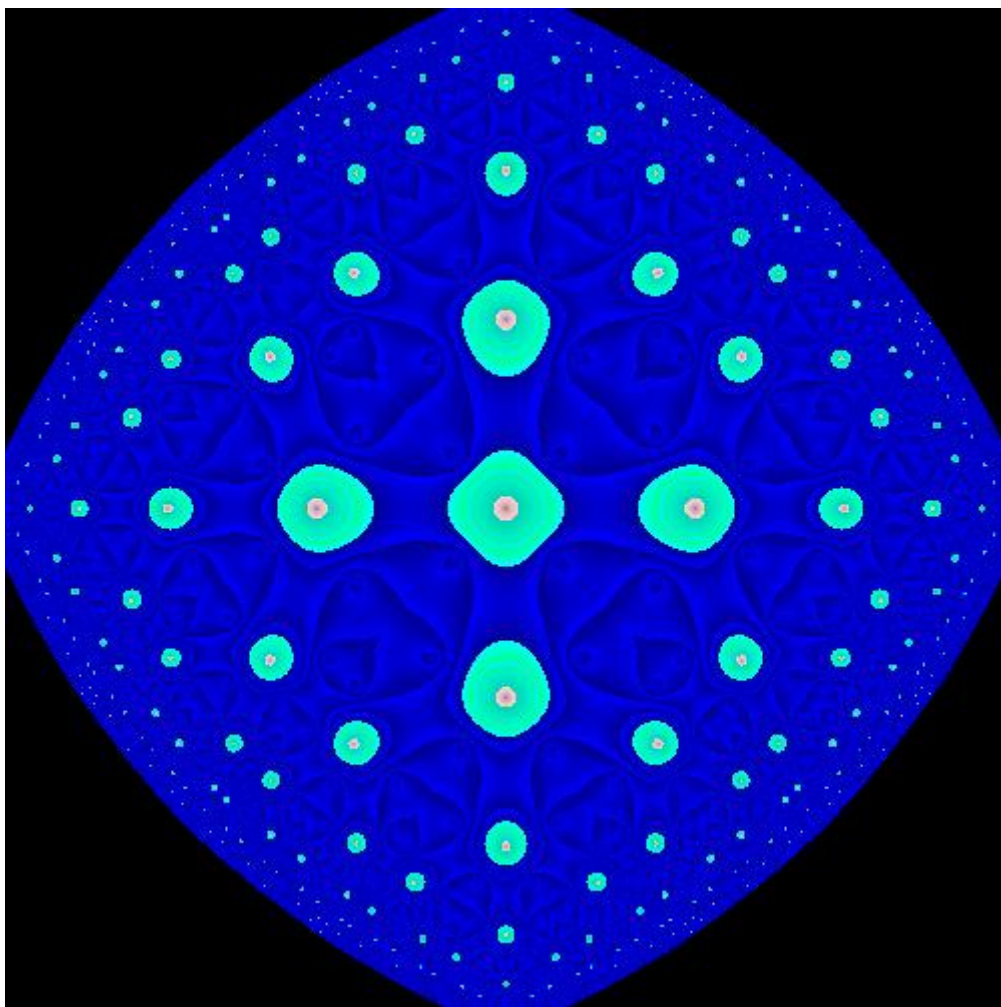


Figure 7.

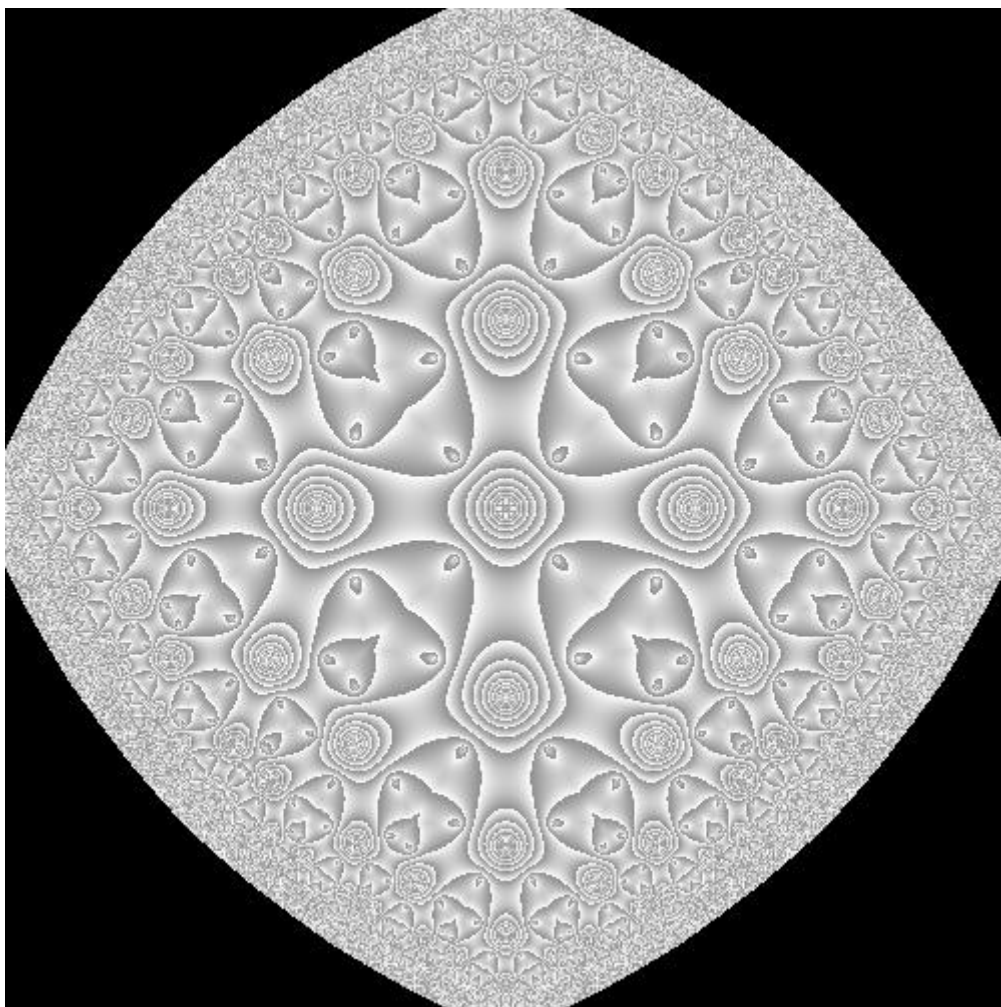


Figure 8.

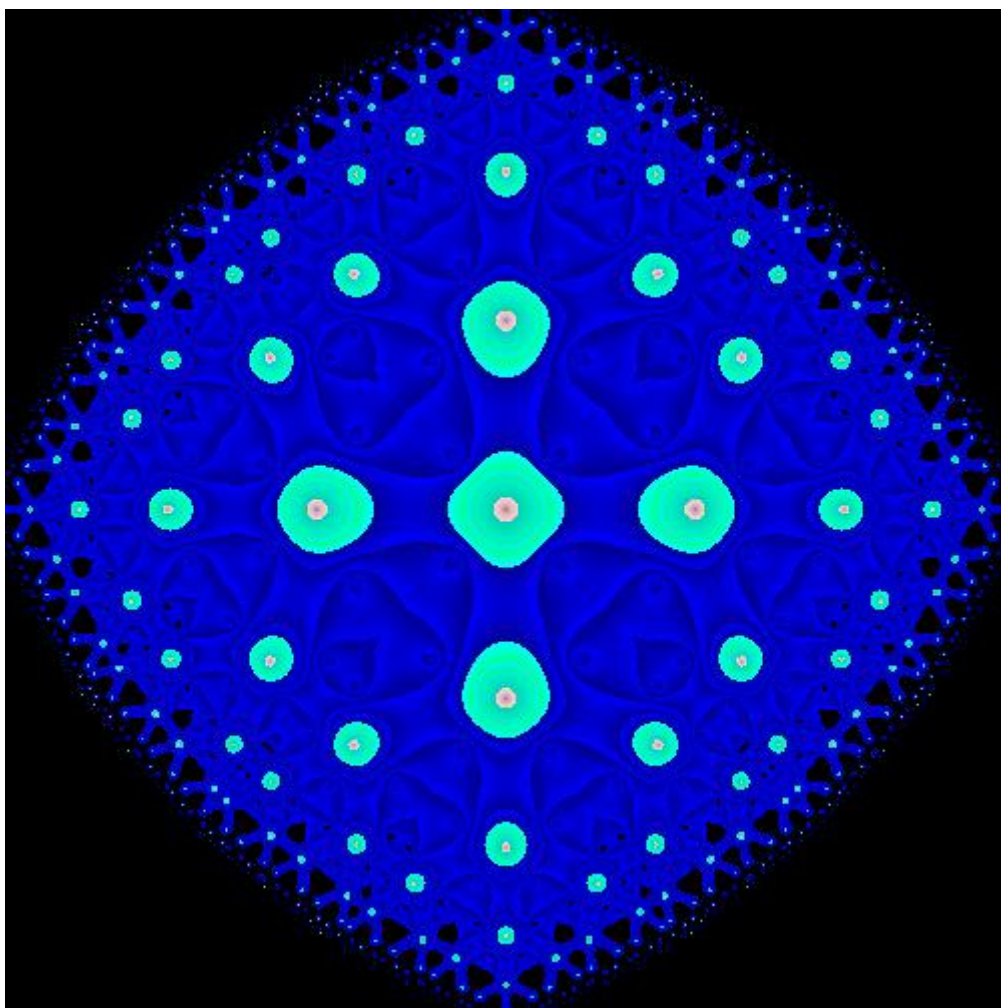


Figure 9.

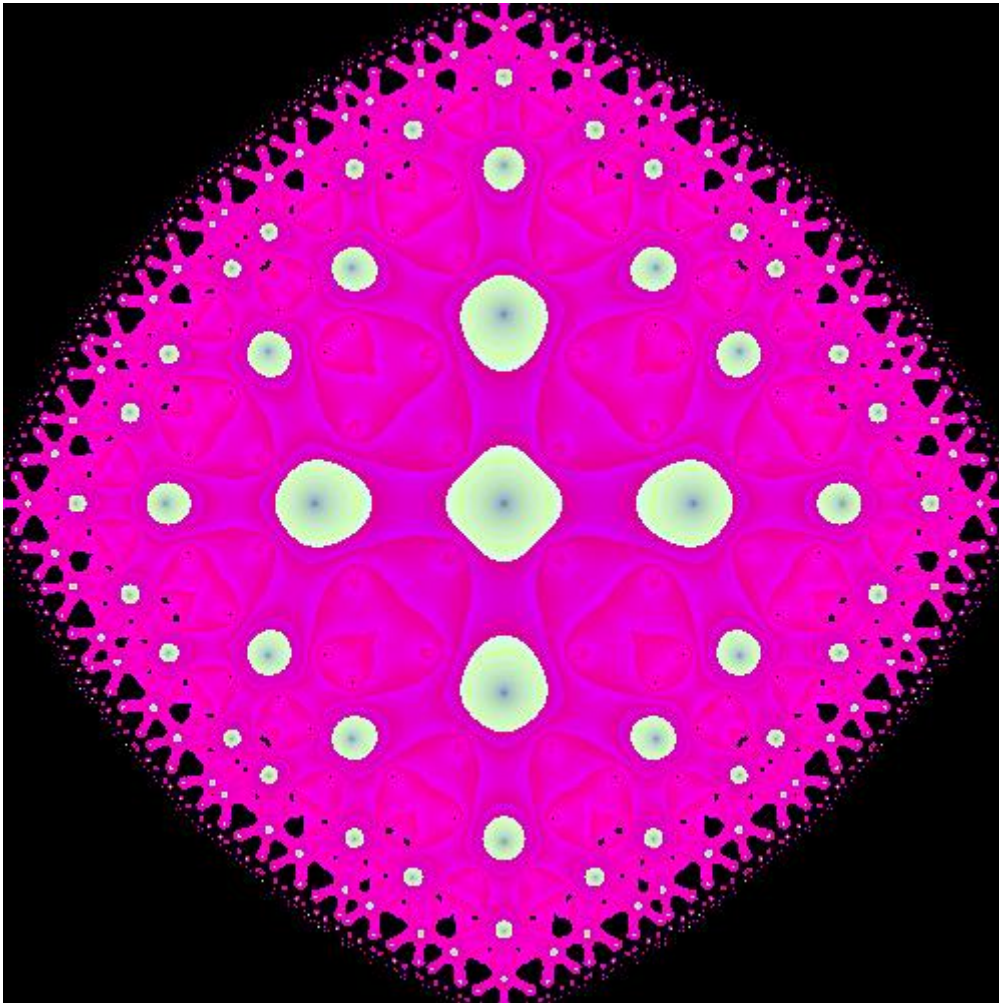


Figure 10.

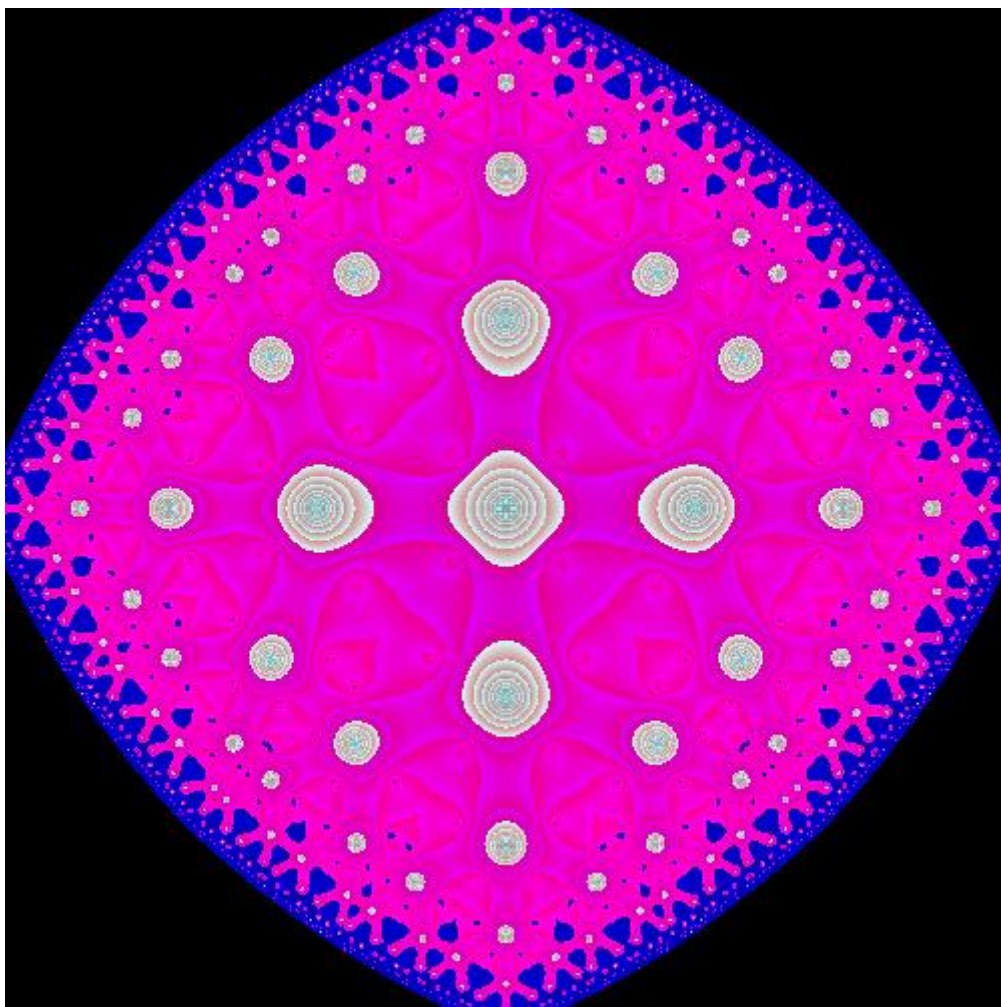


Figure 11.

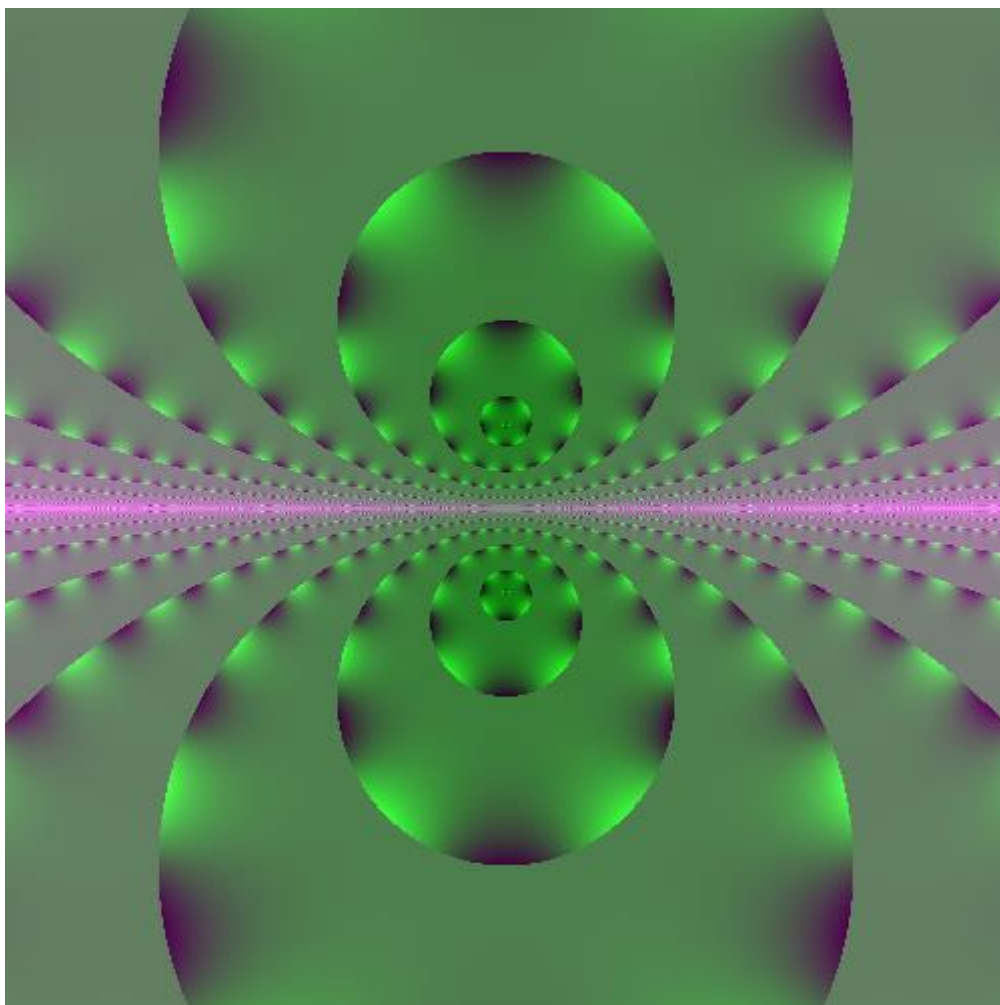


Figure 12.

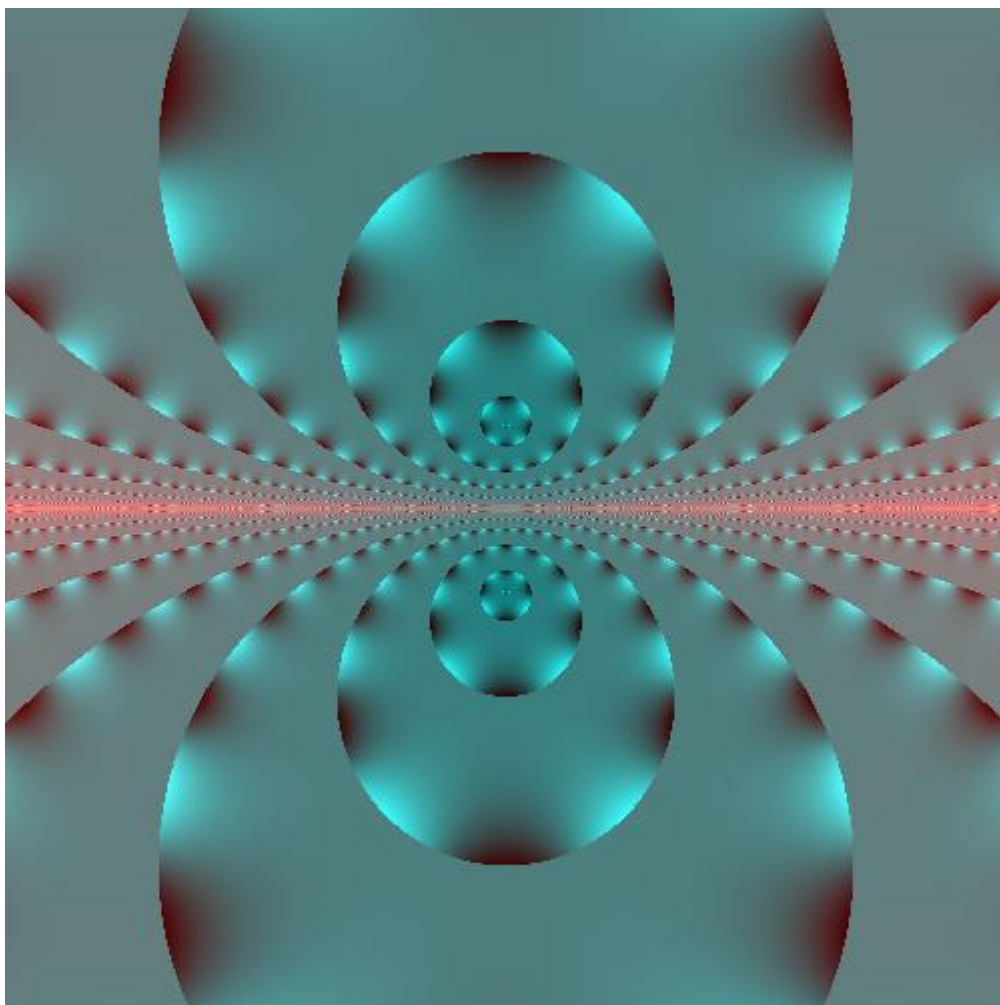


Figure 13.

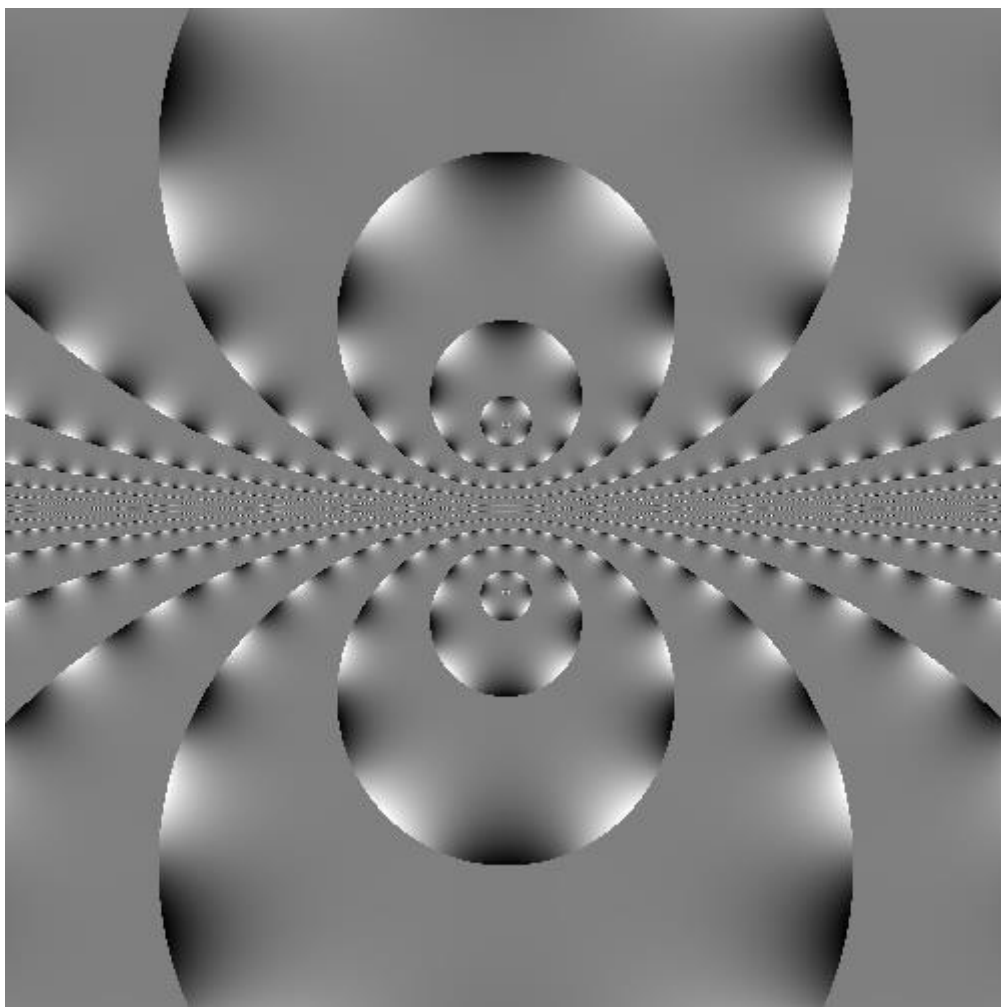


Figure 14.

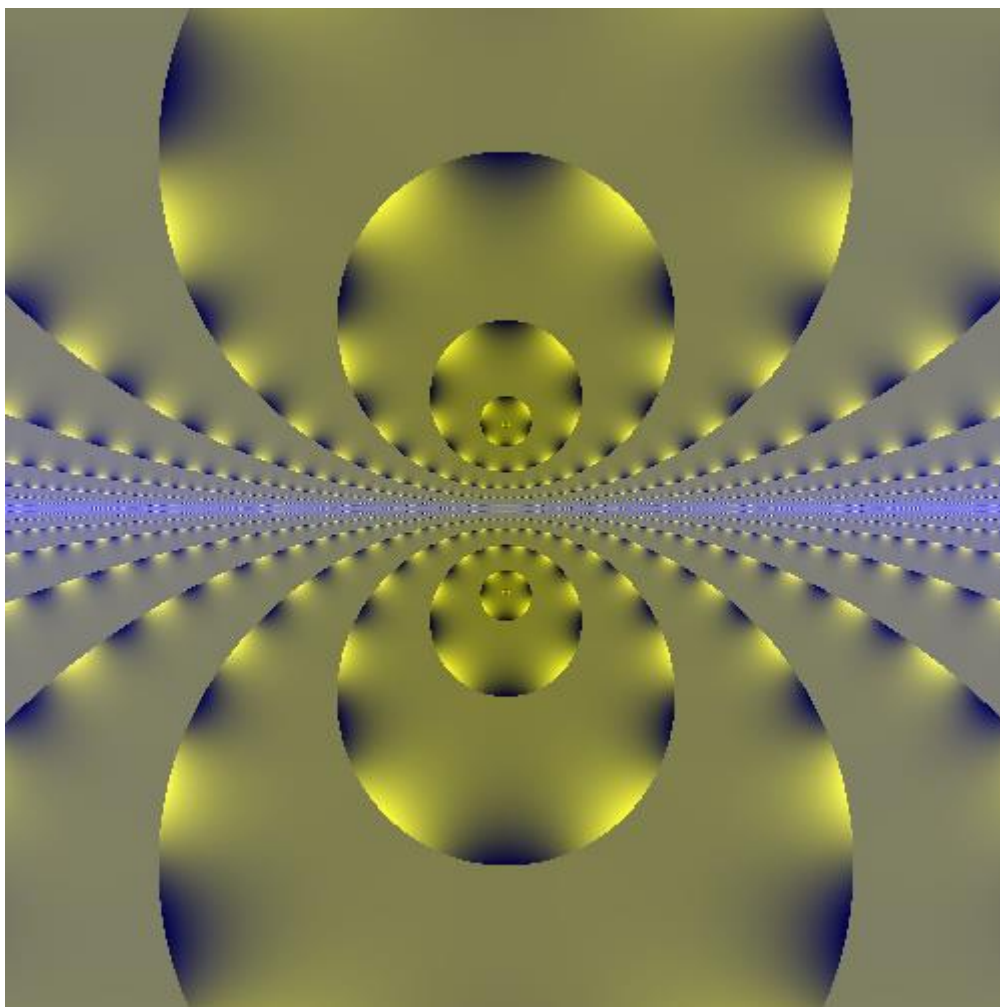


Figure 15.

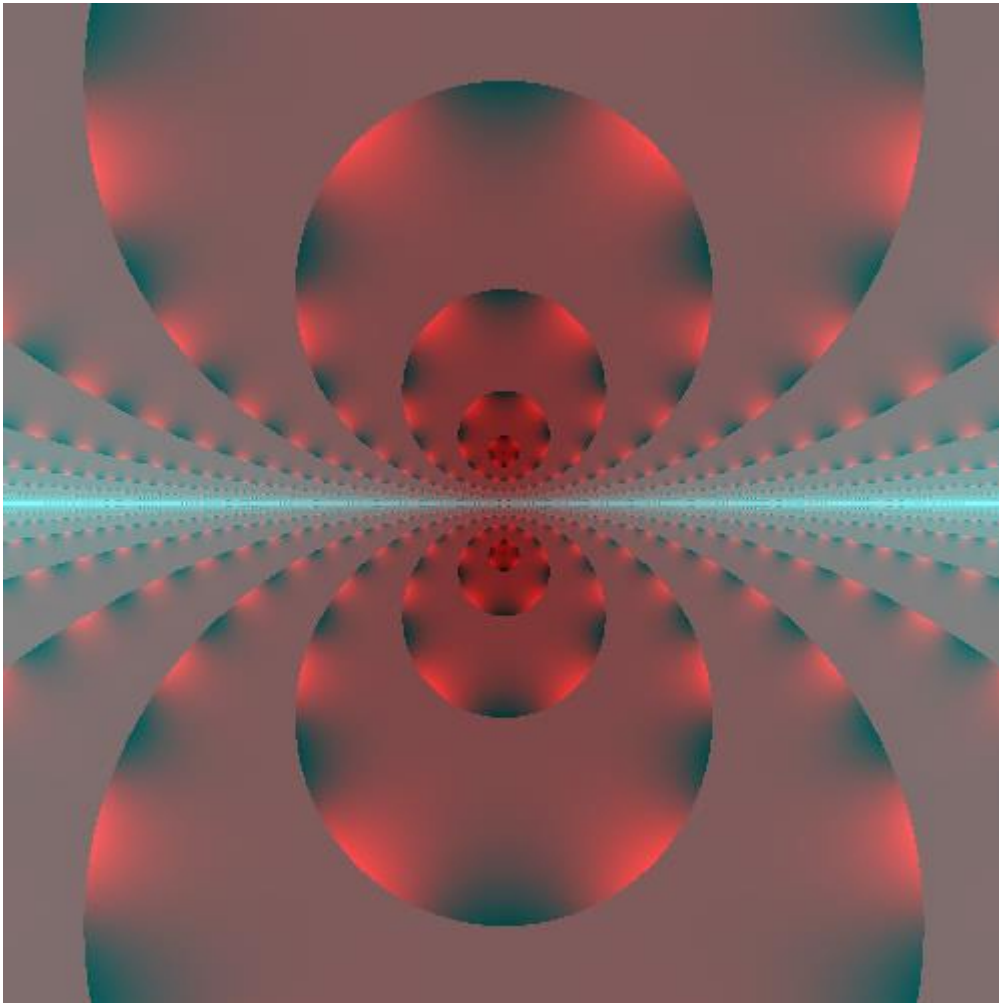


Figure 16.

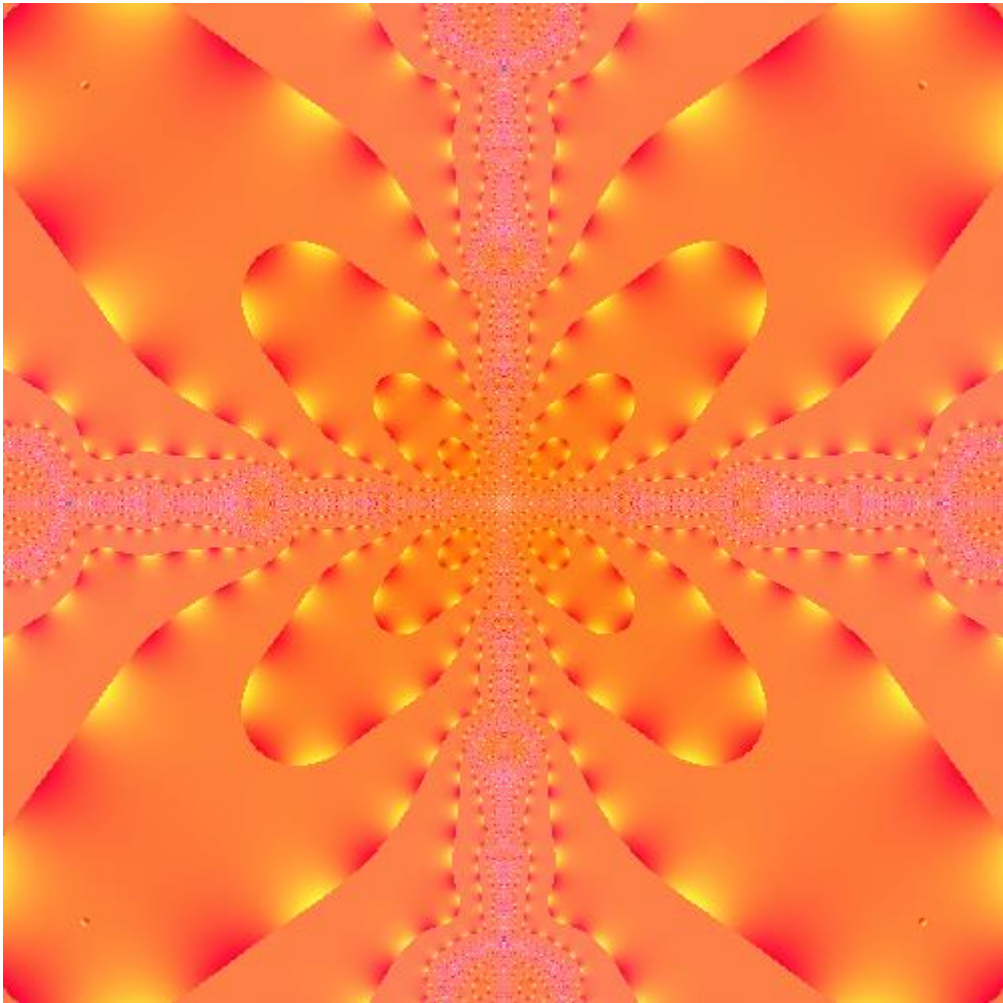


Figure 17.

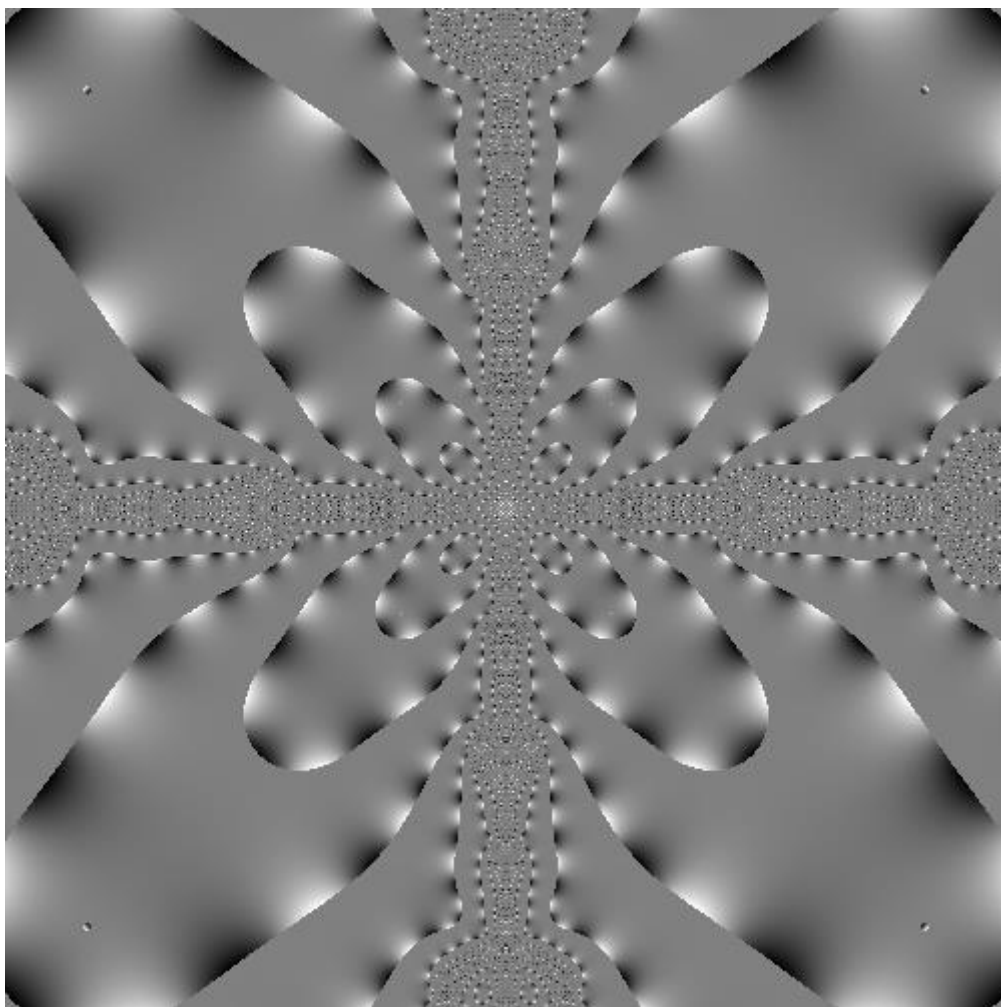


Figure 18.

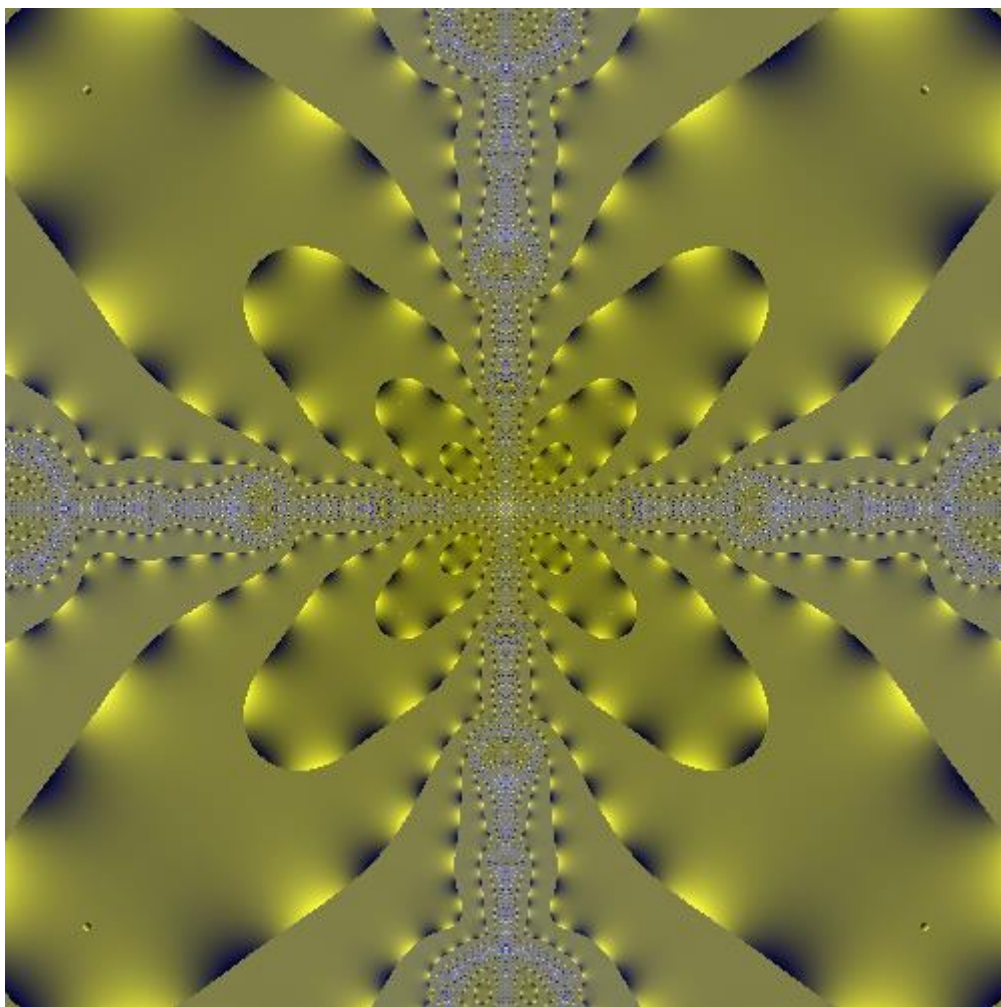


Figure 19.

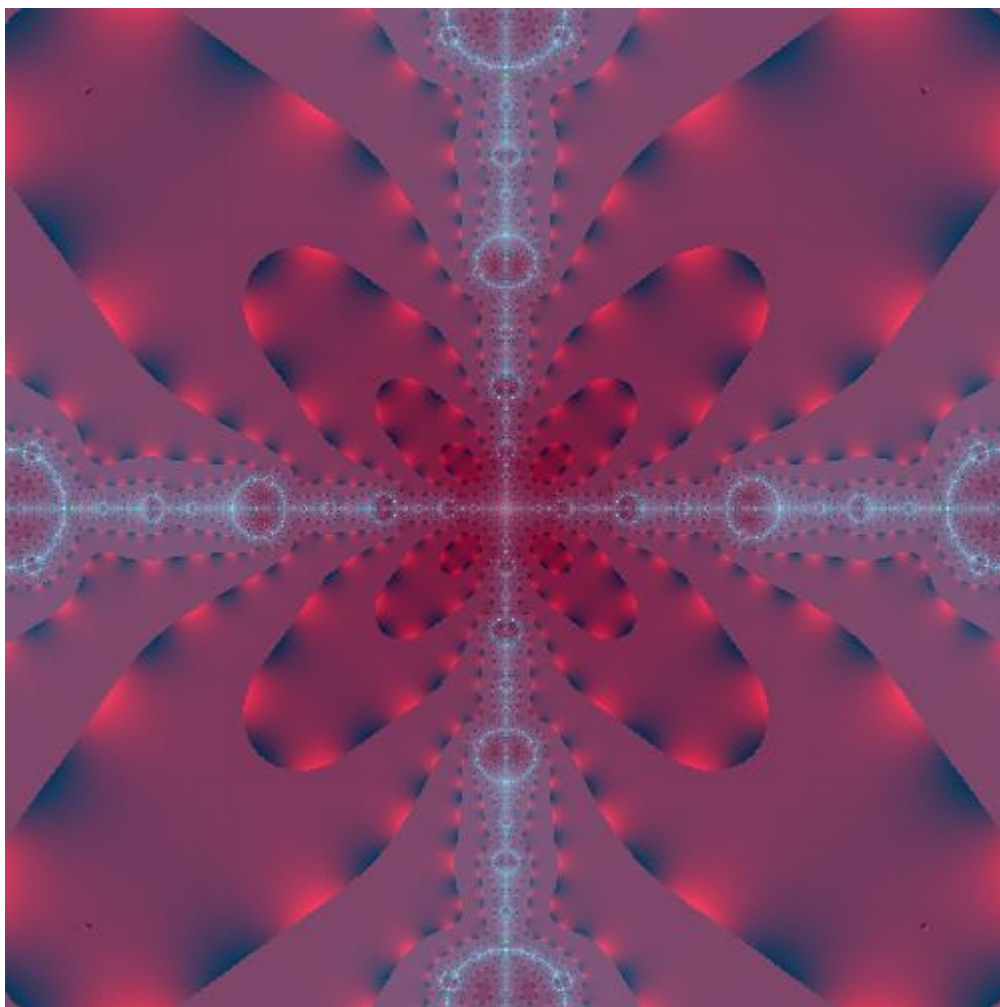


Figure 20.

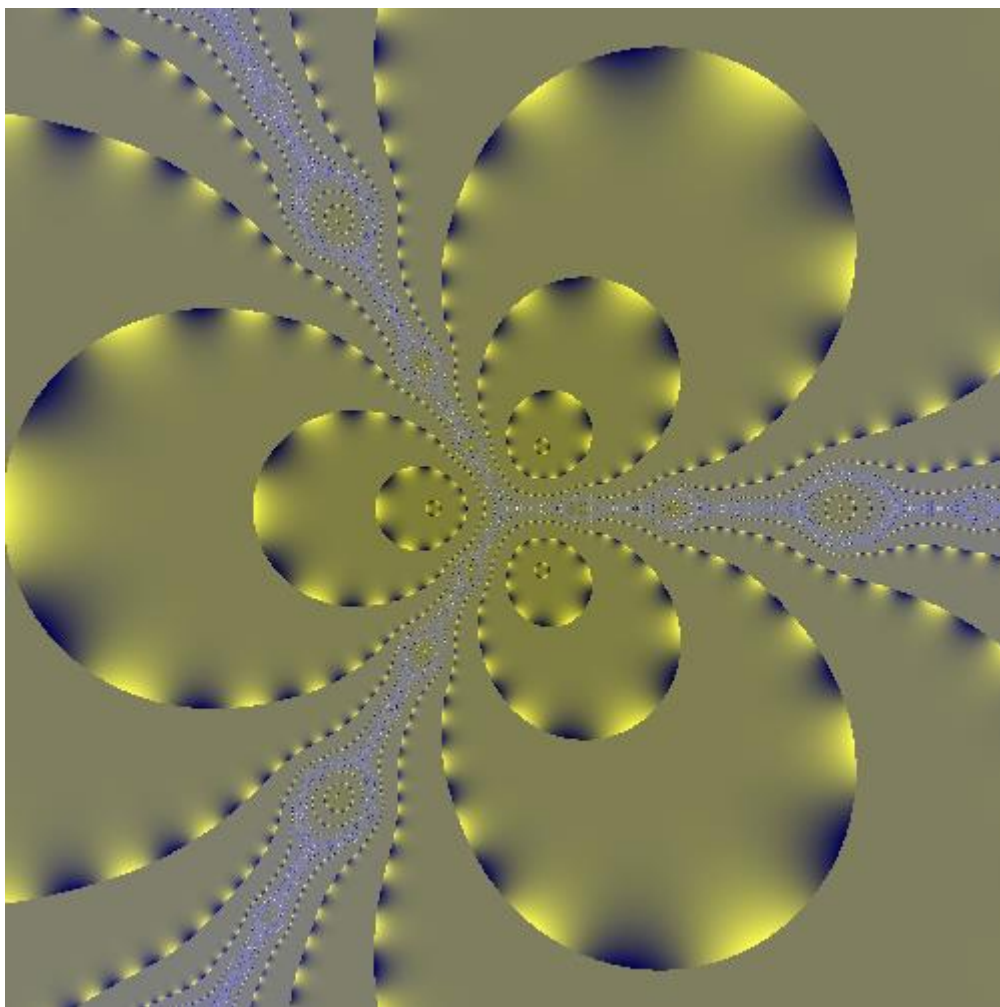


Figure 21.

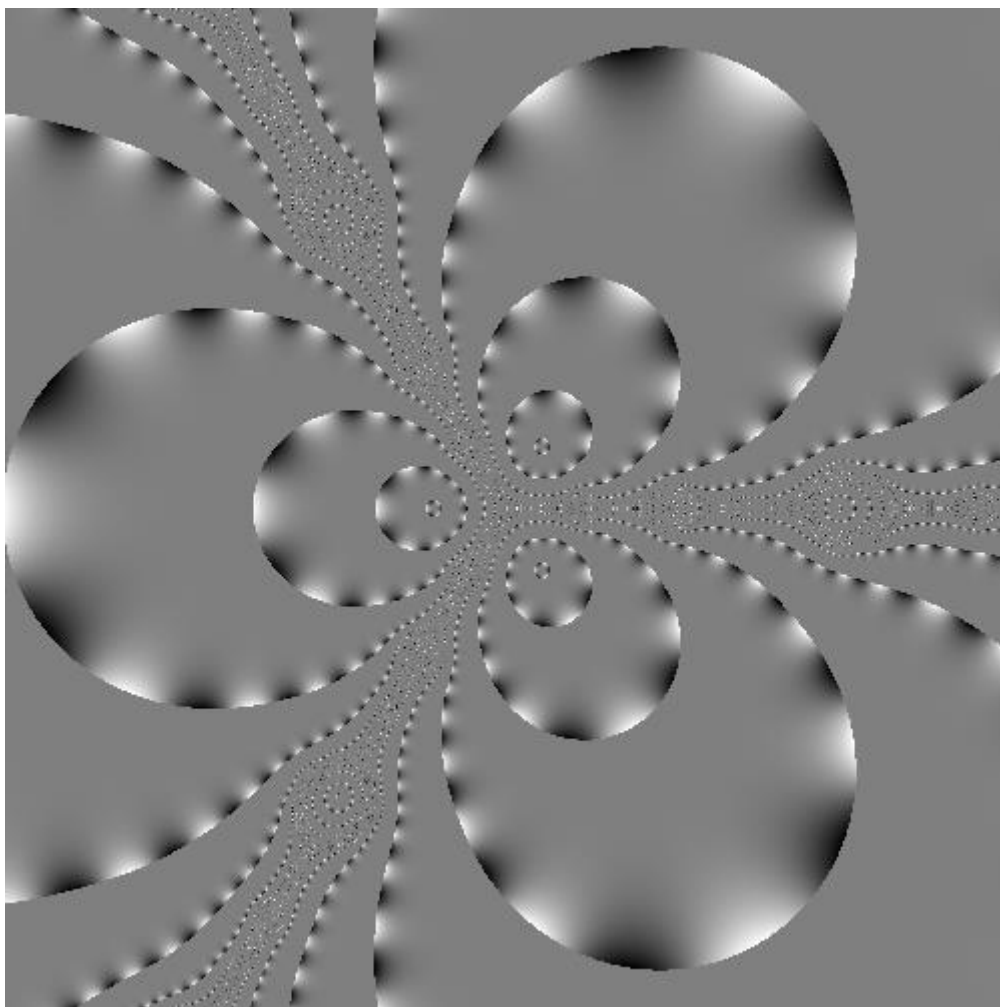


Figure 22.

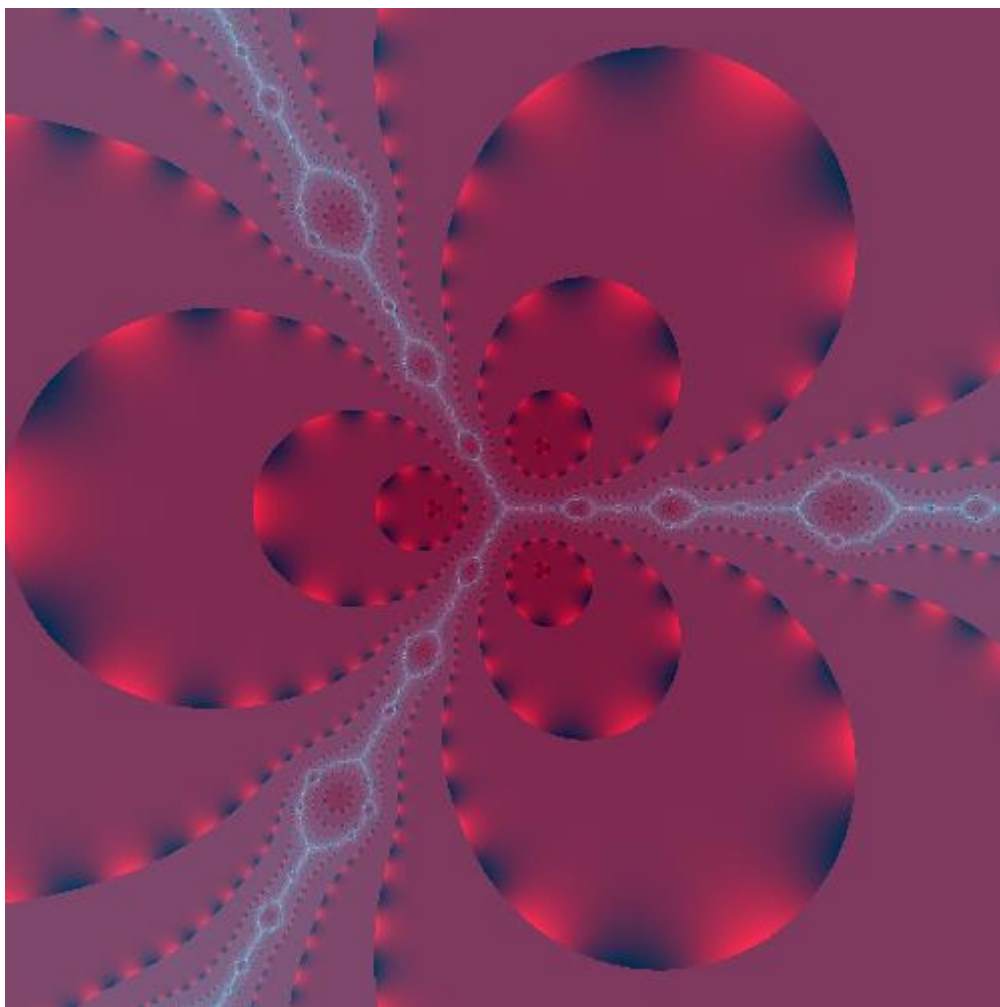


Figure 23.

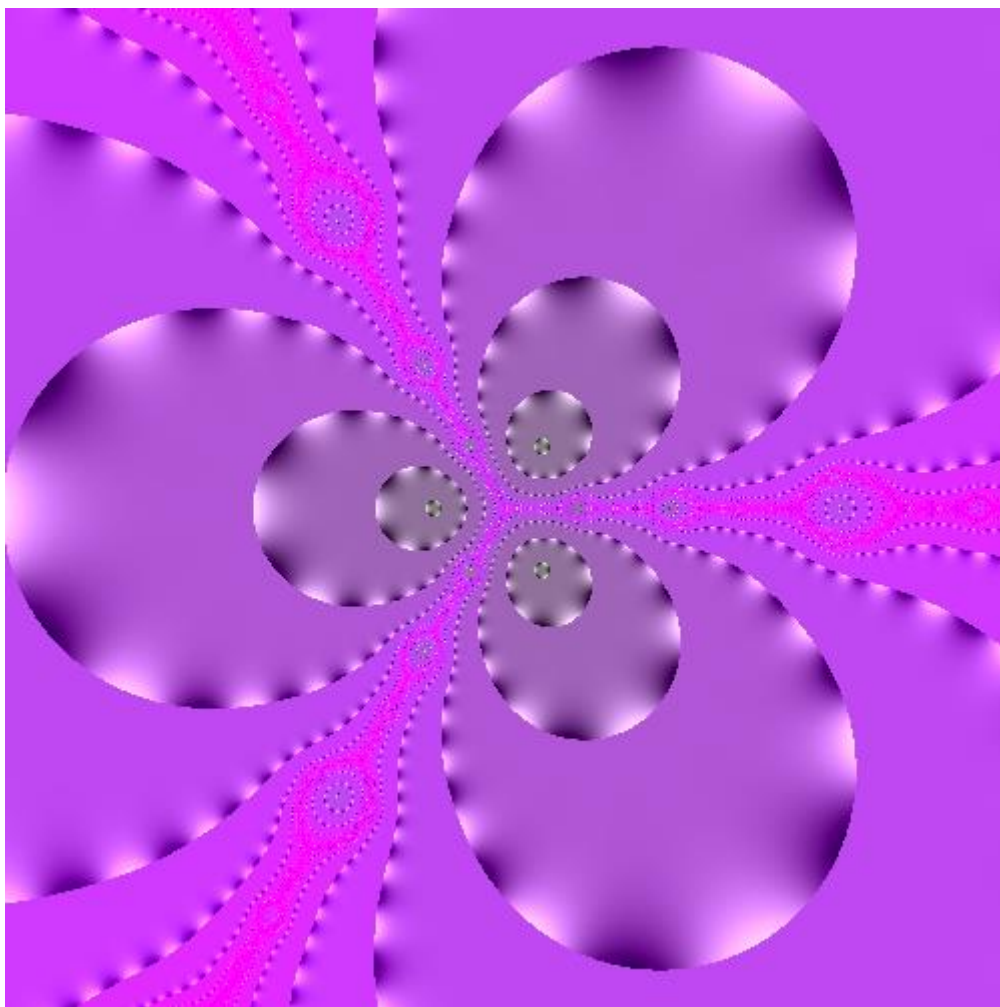


Figure 24.

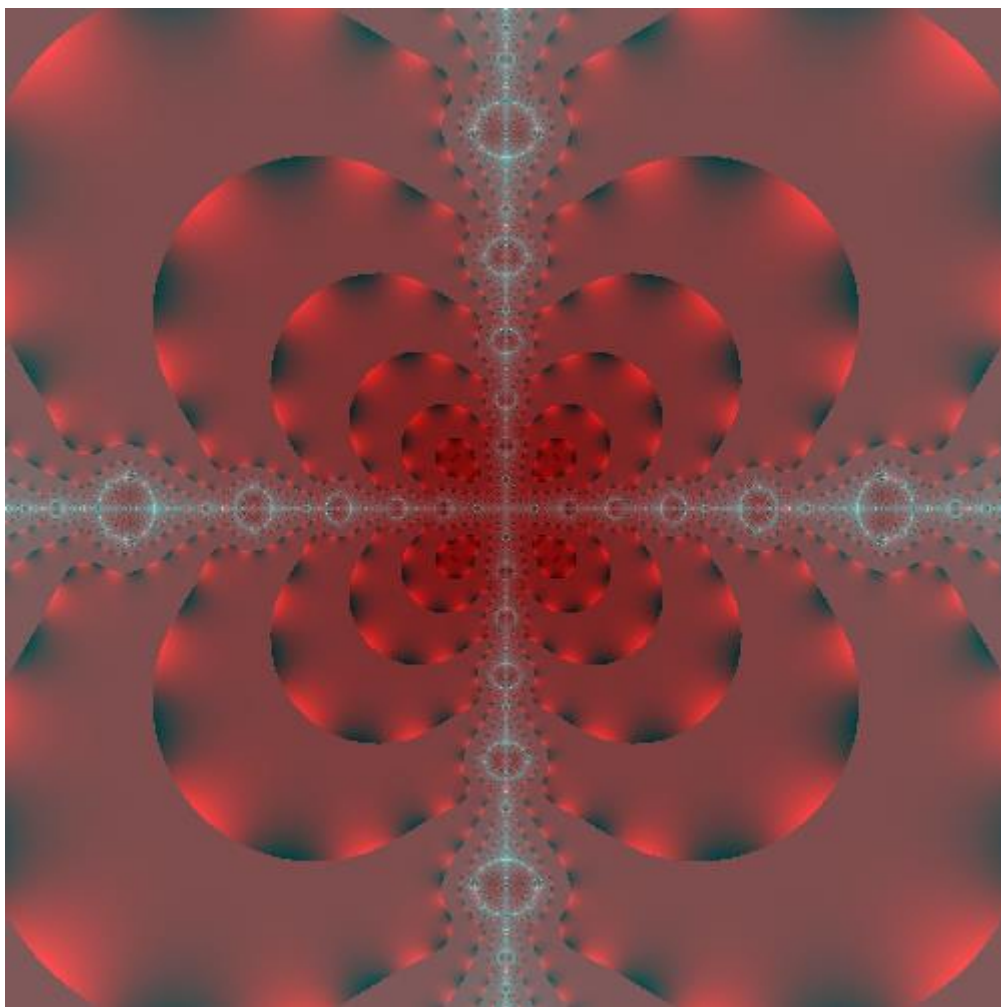


Figure 25.

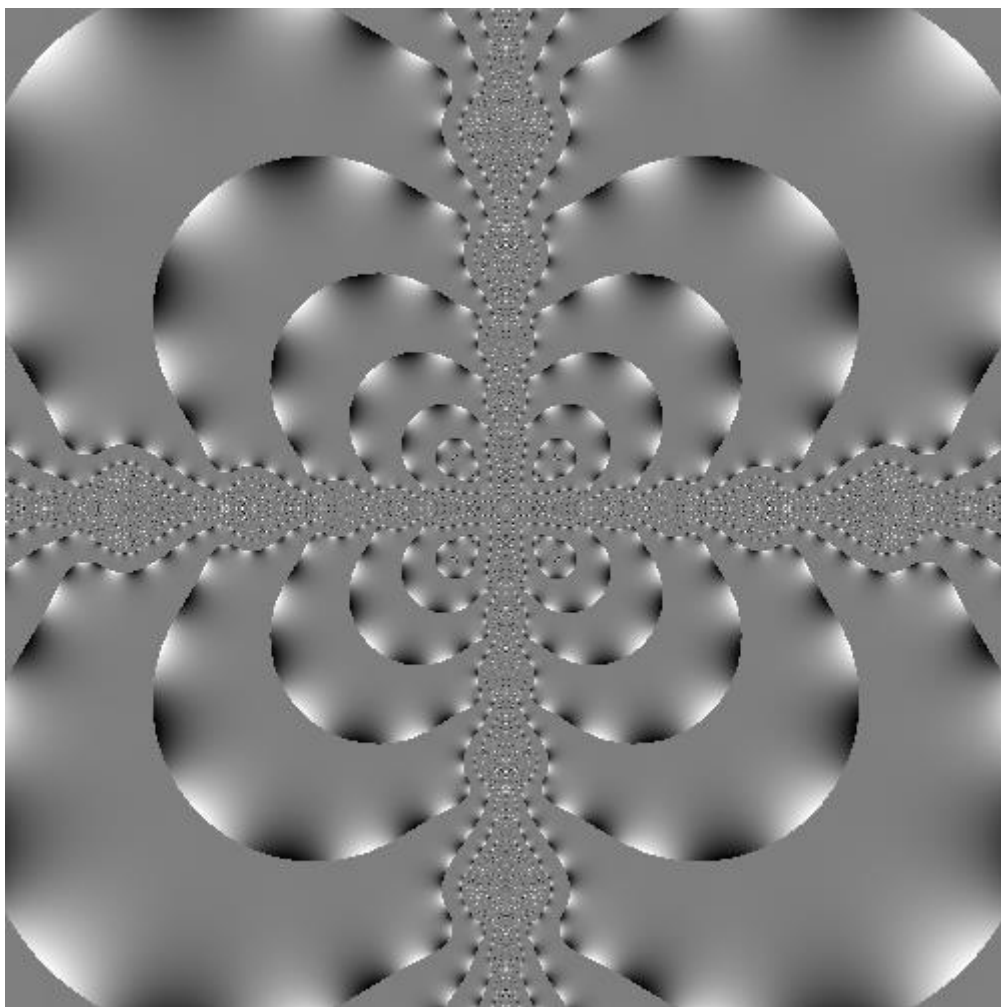


Figure 26.

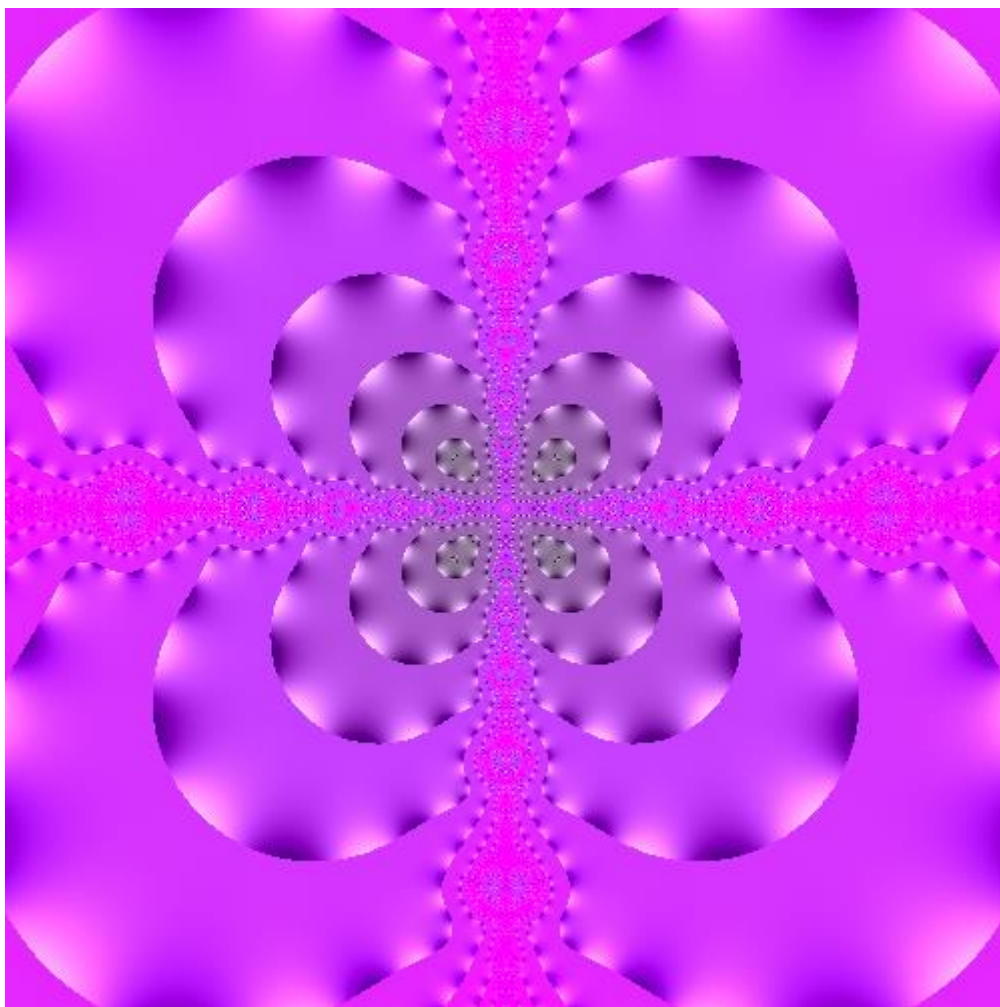


Figure 27.

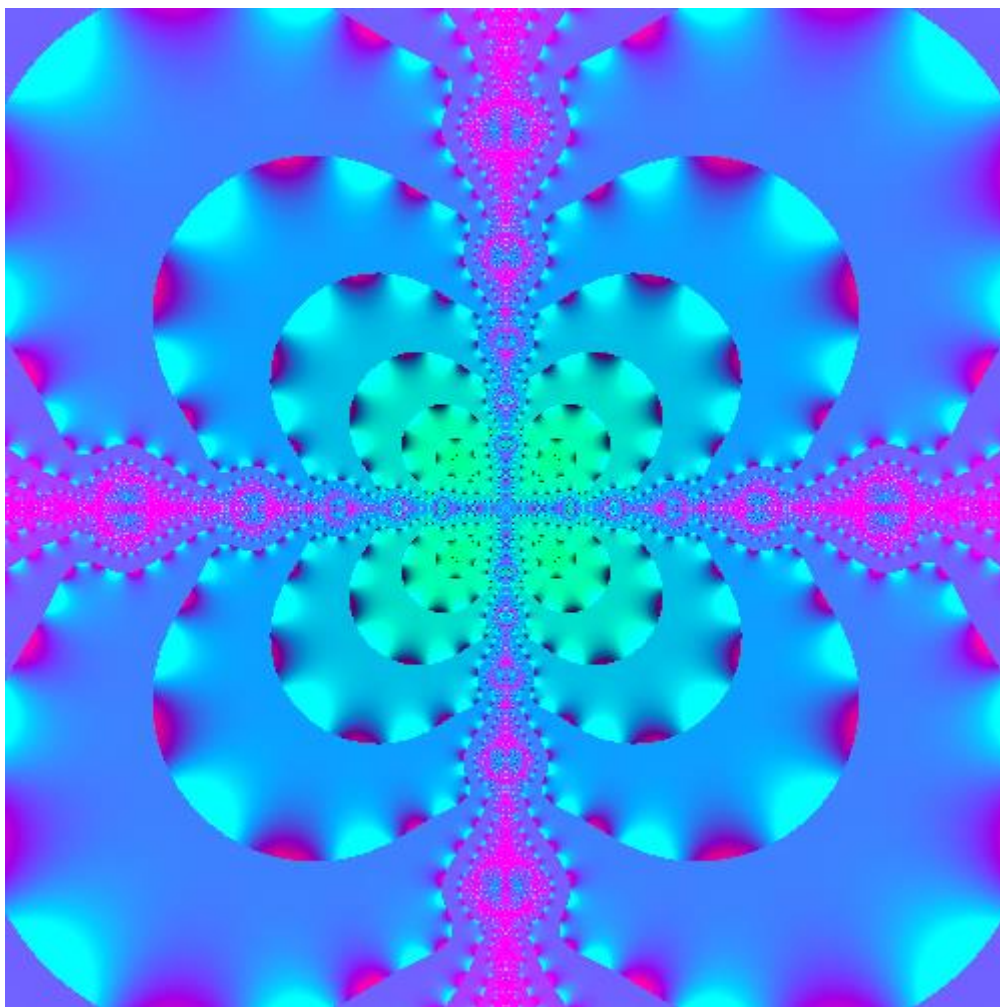


Figure 28.

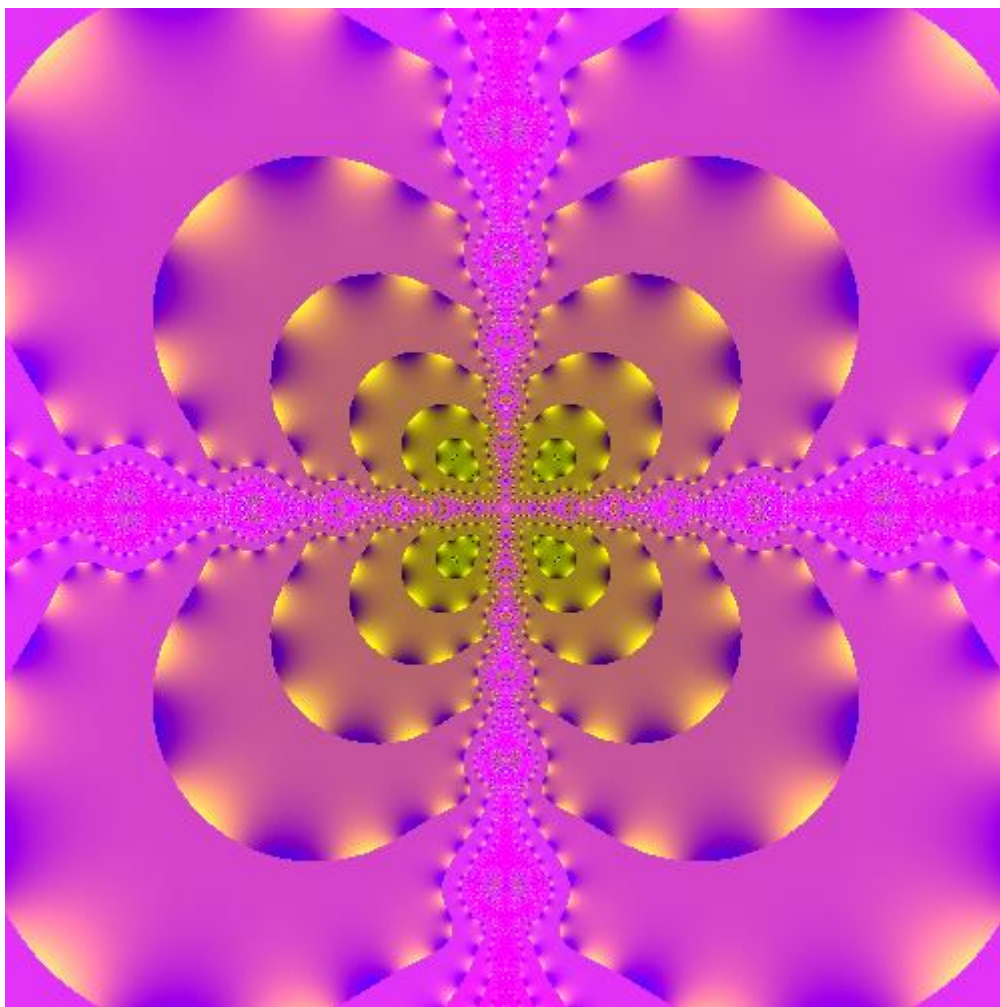


Figure 29.

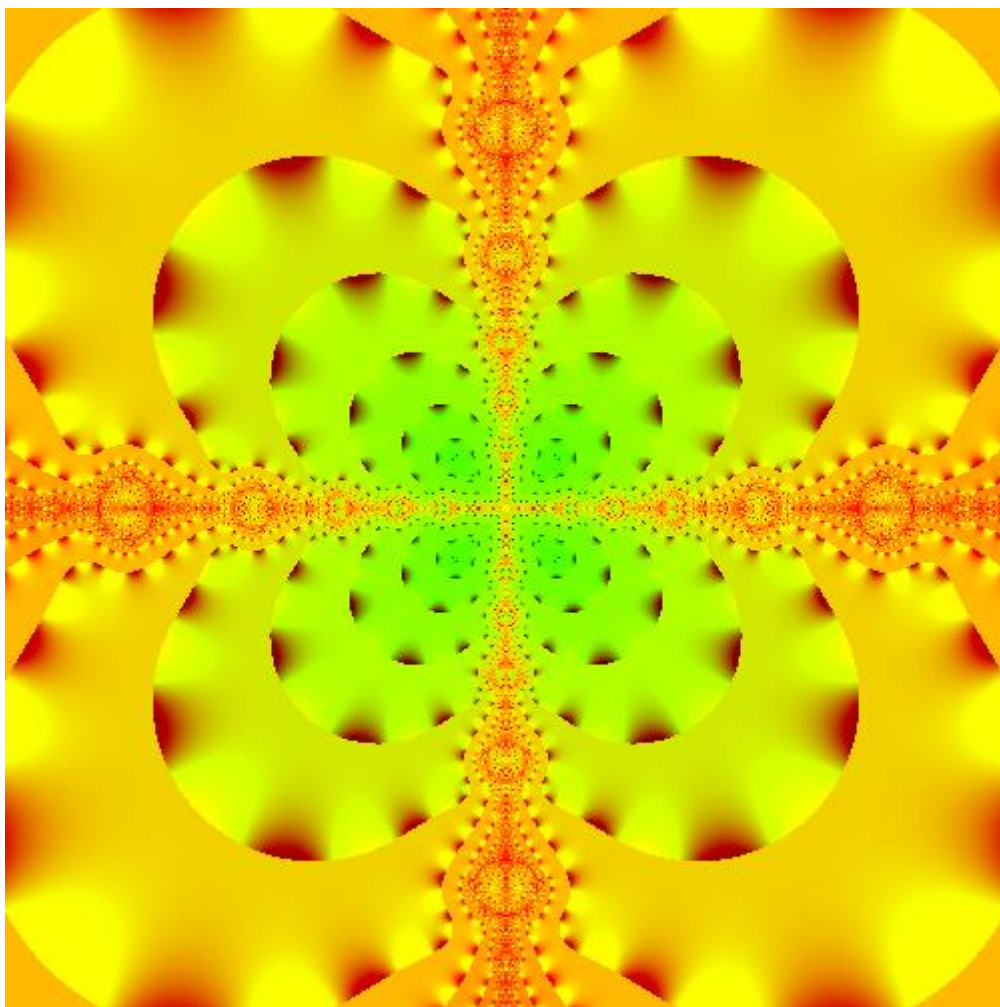


Figure 30.

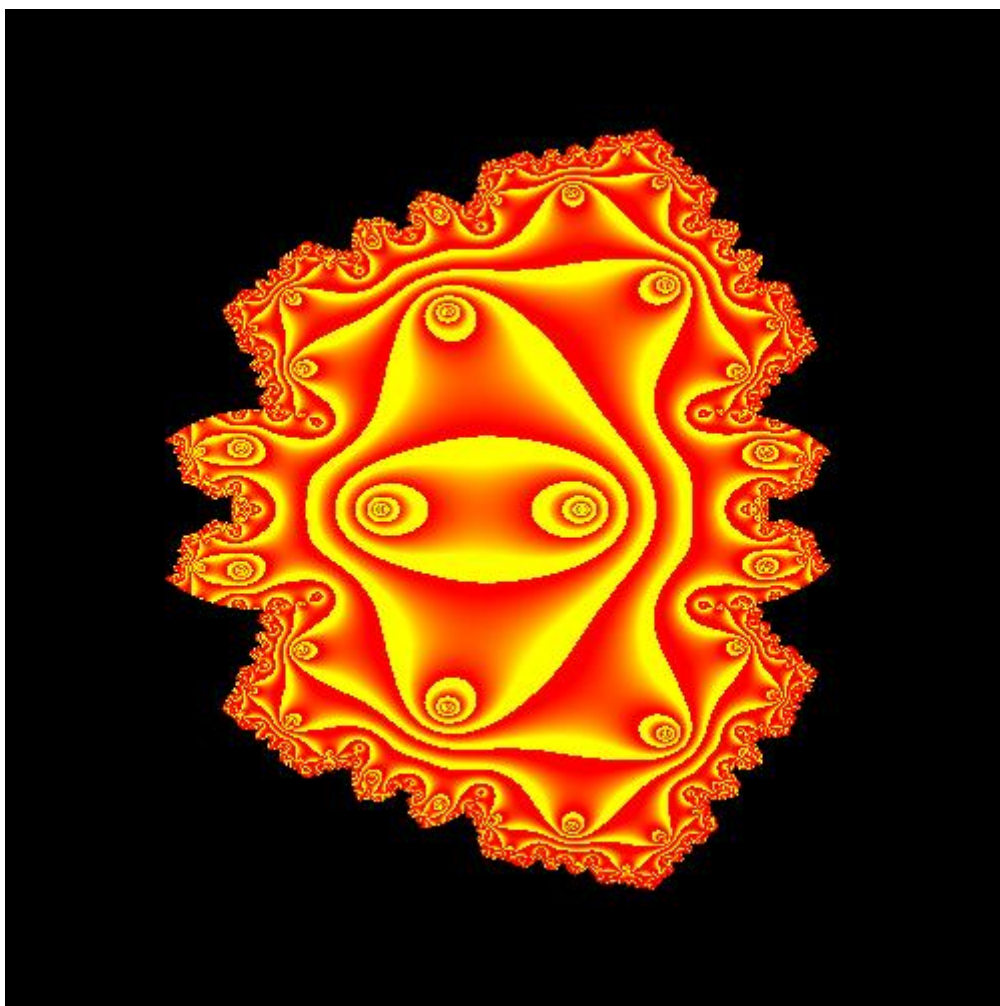


Figure 31.

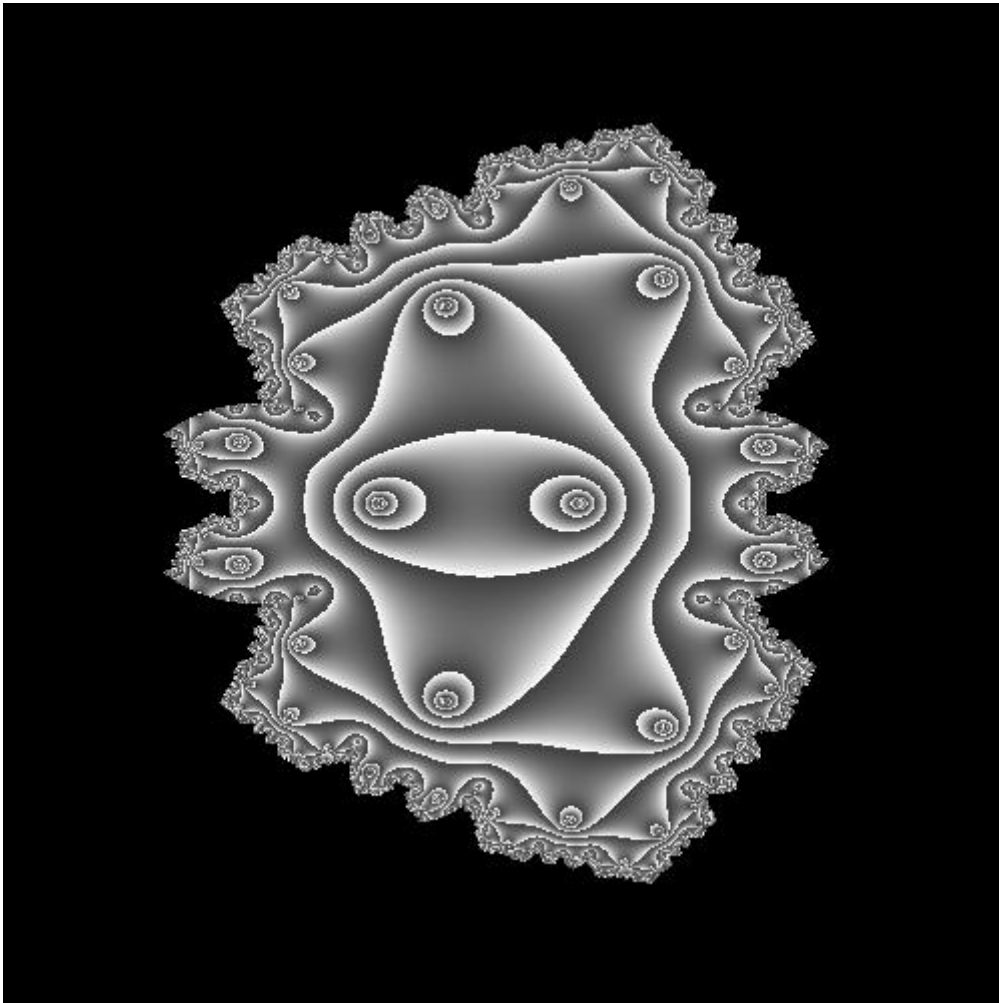


Figure 32.

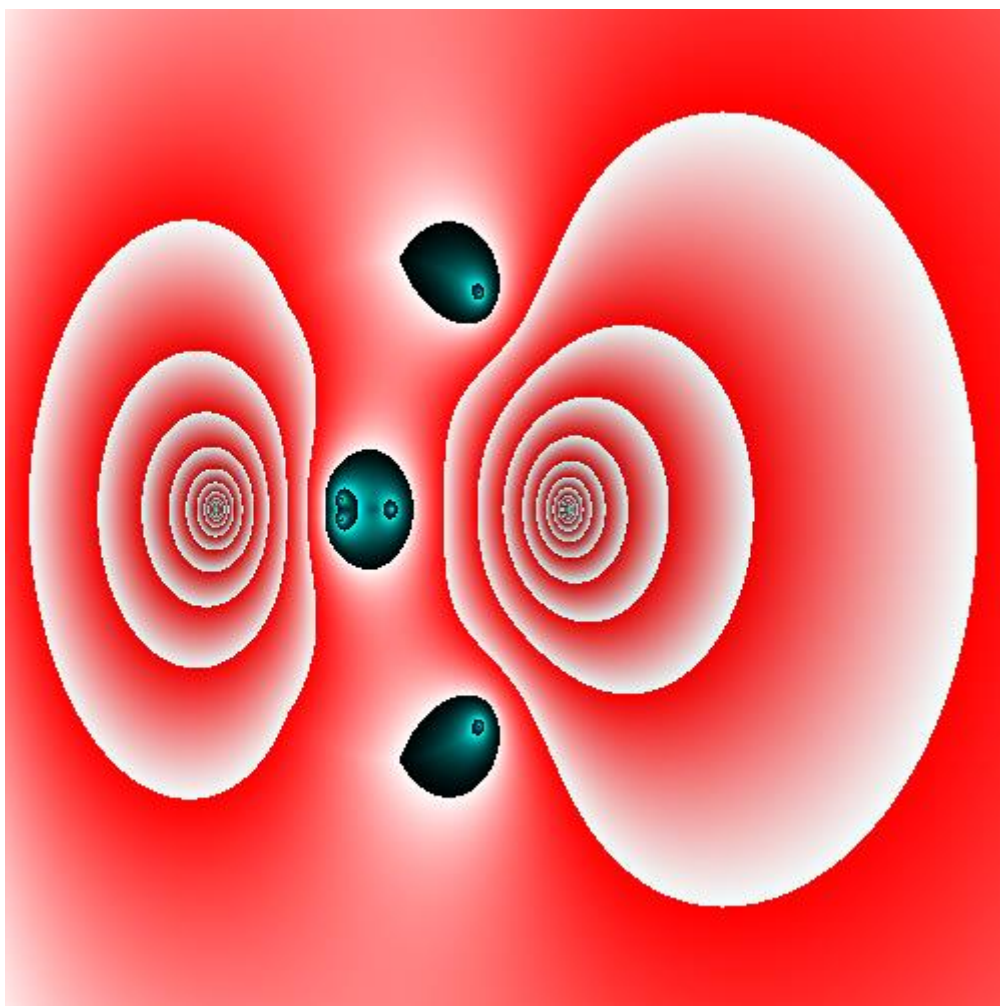


Figure 33.

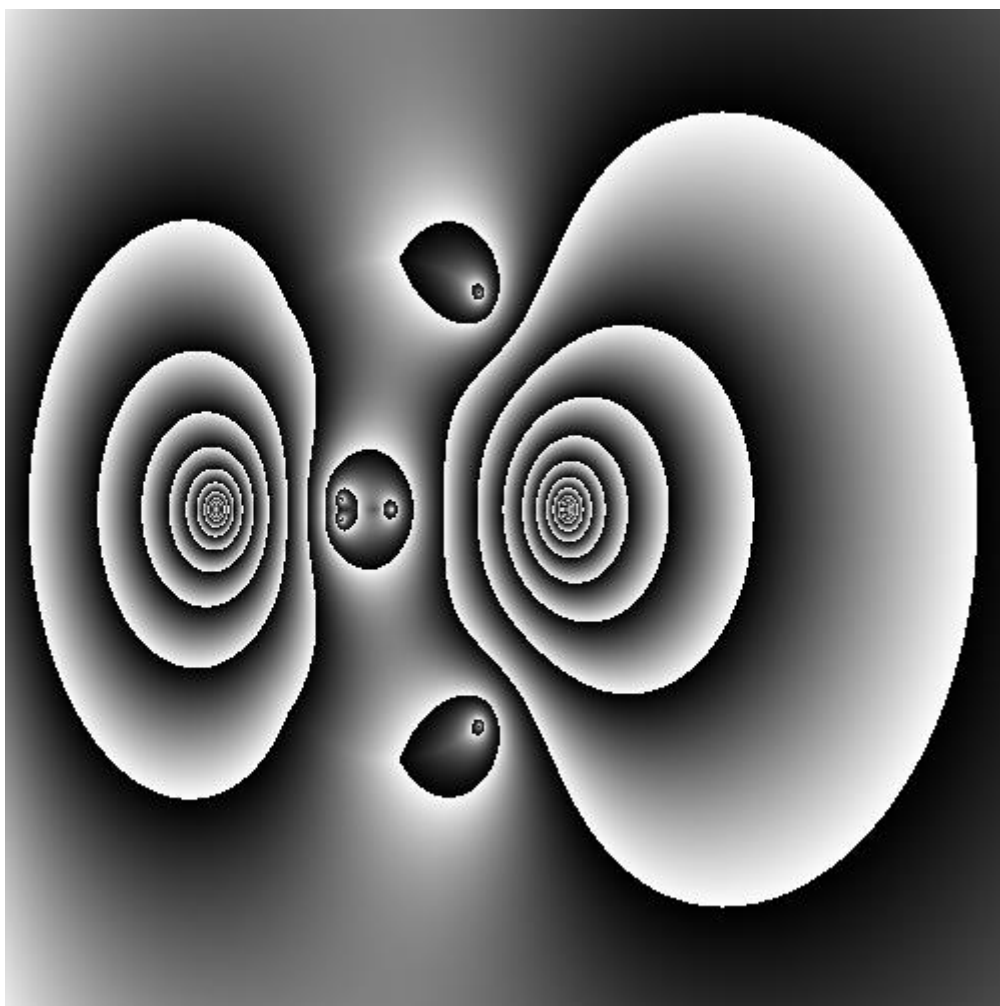


Figure 34.

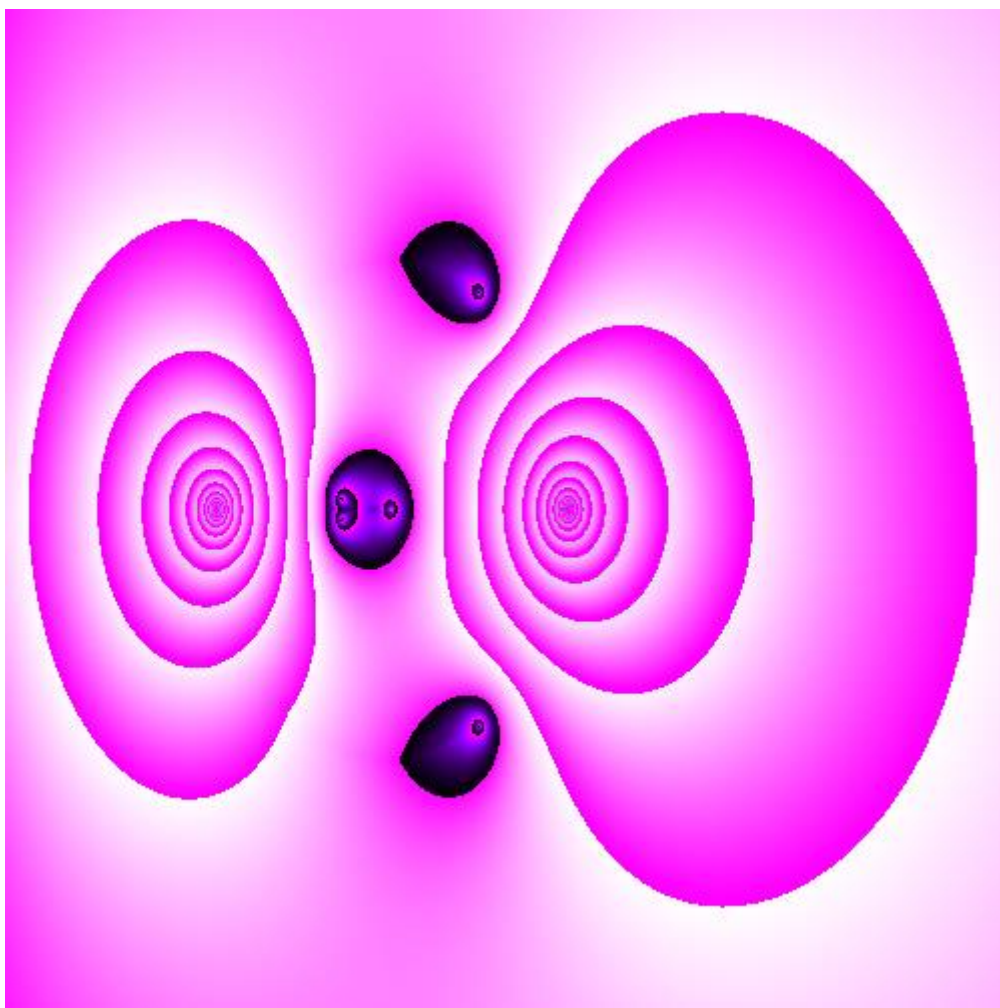


Figure 35.

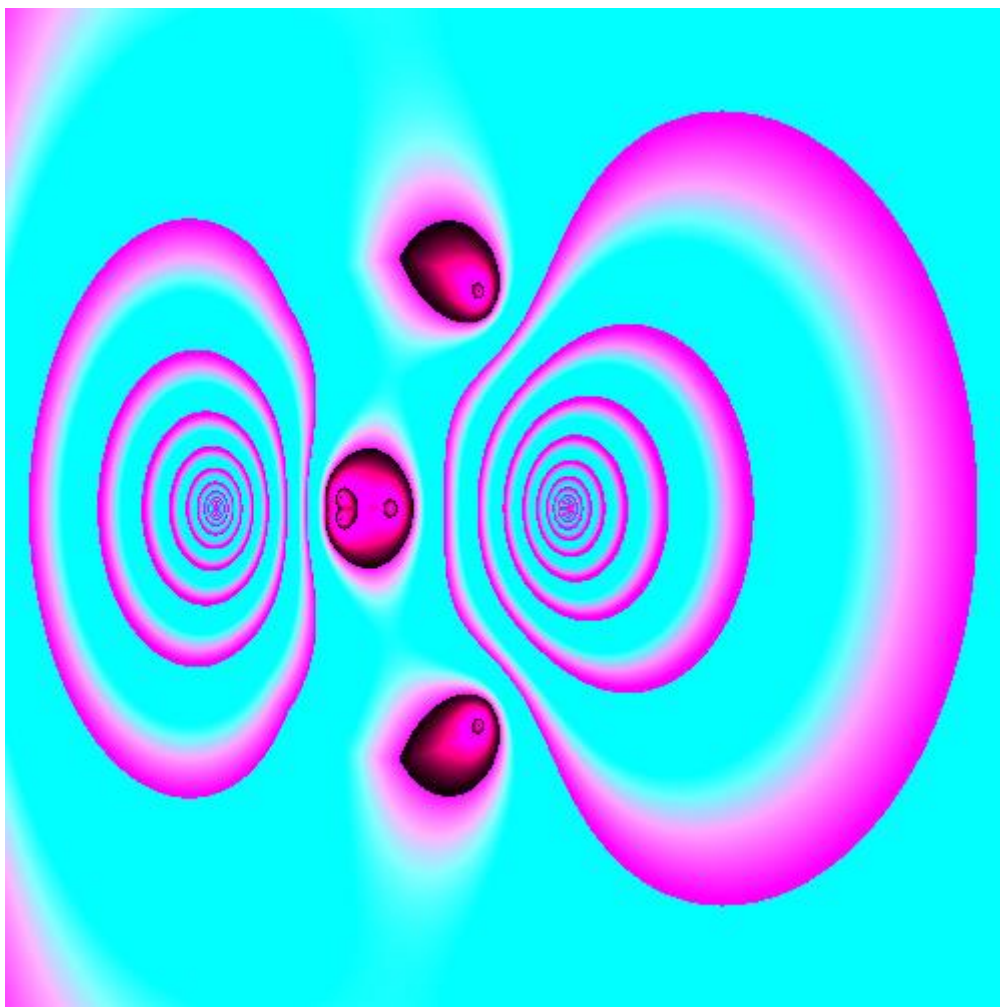


Figure 36.

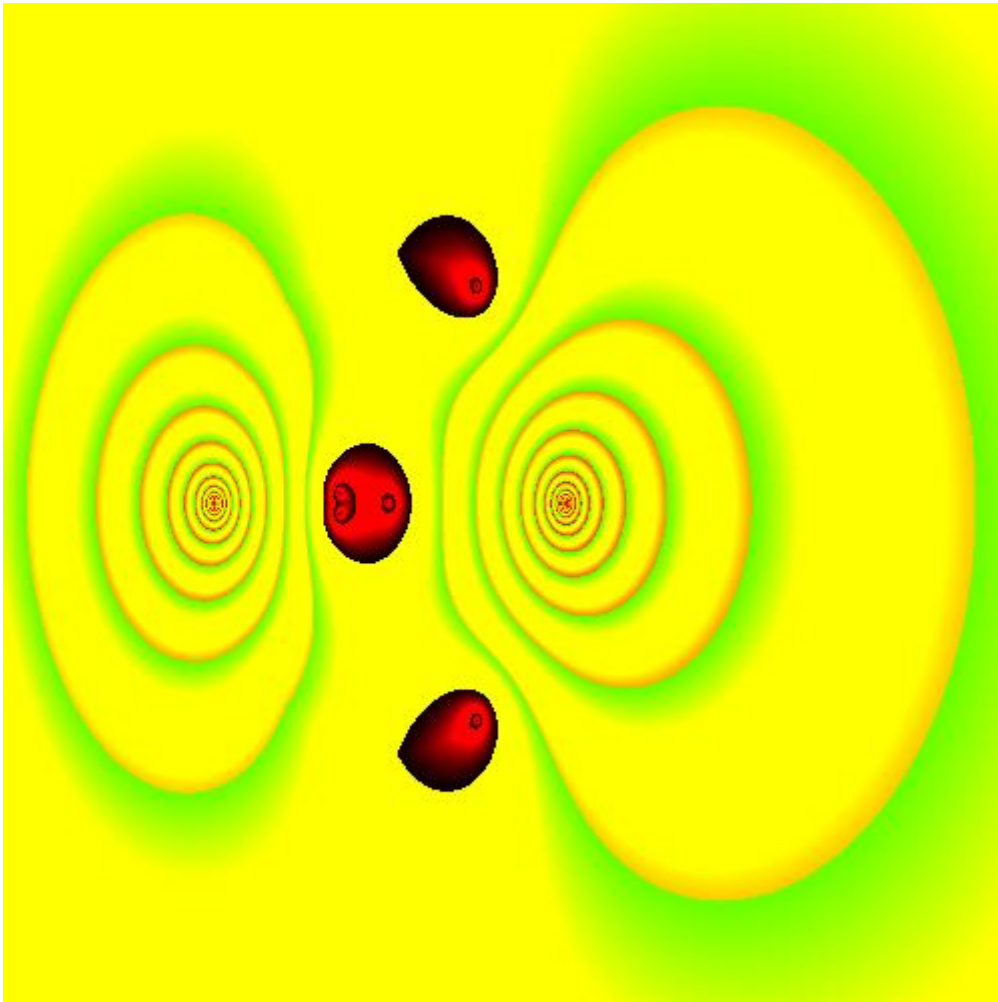


Figure 37.

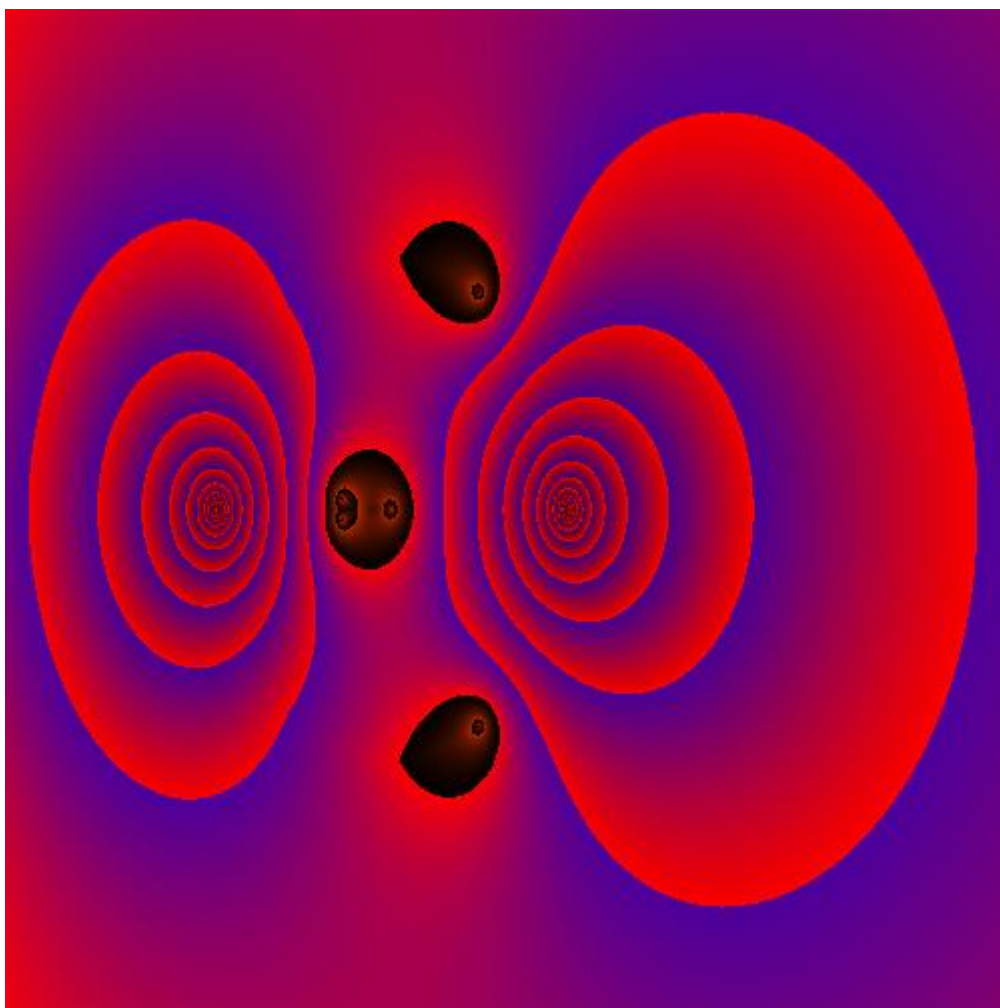


Figure 38.

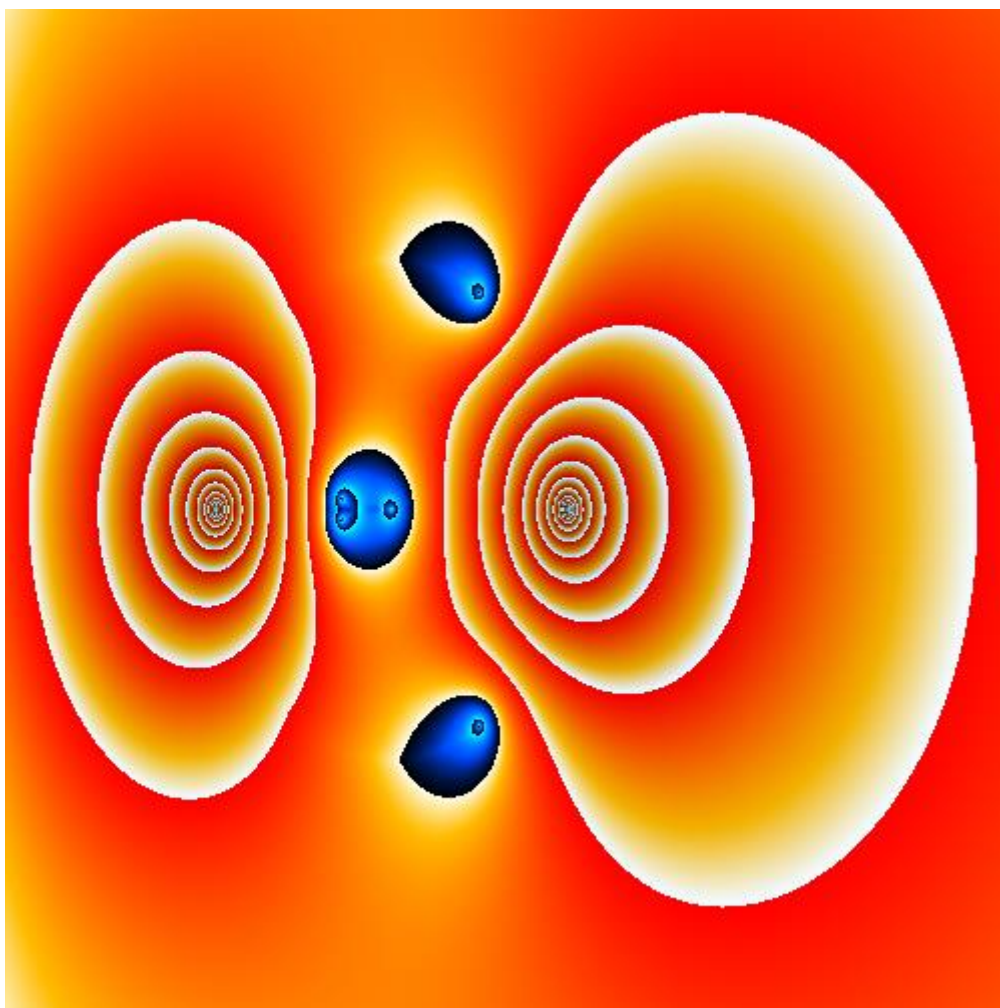


Figure 39.

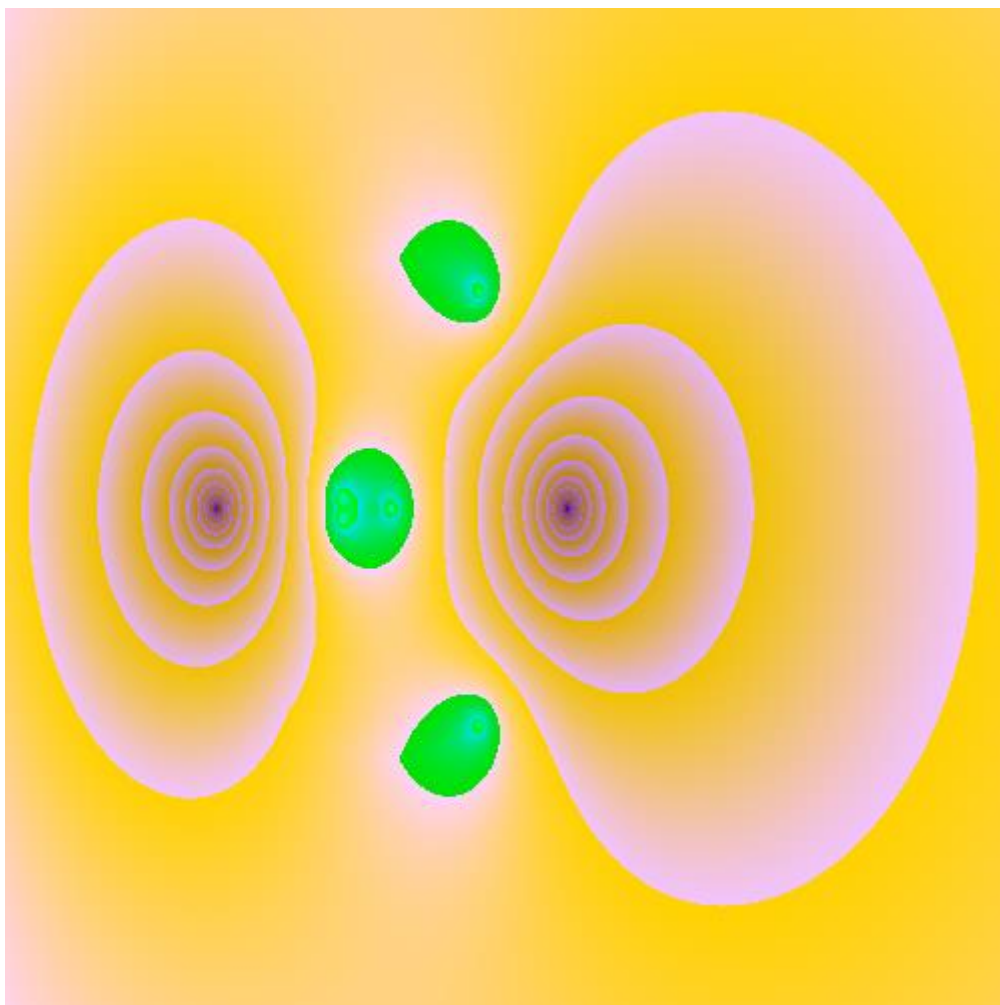


Figure 40.

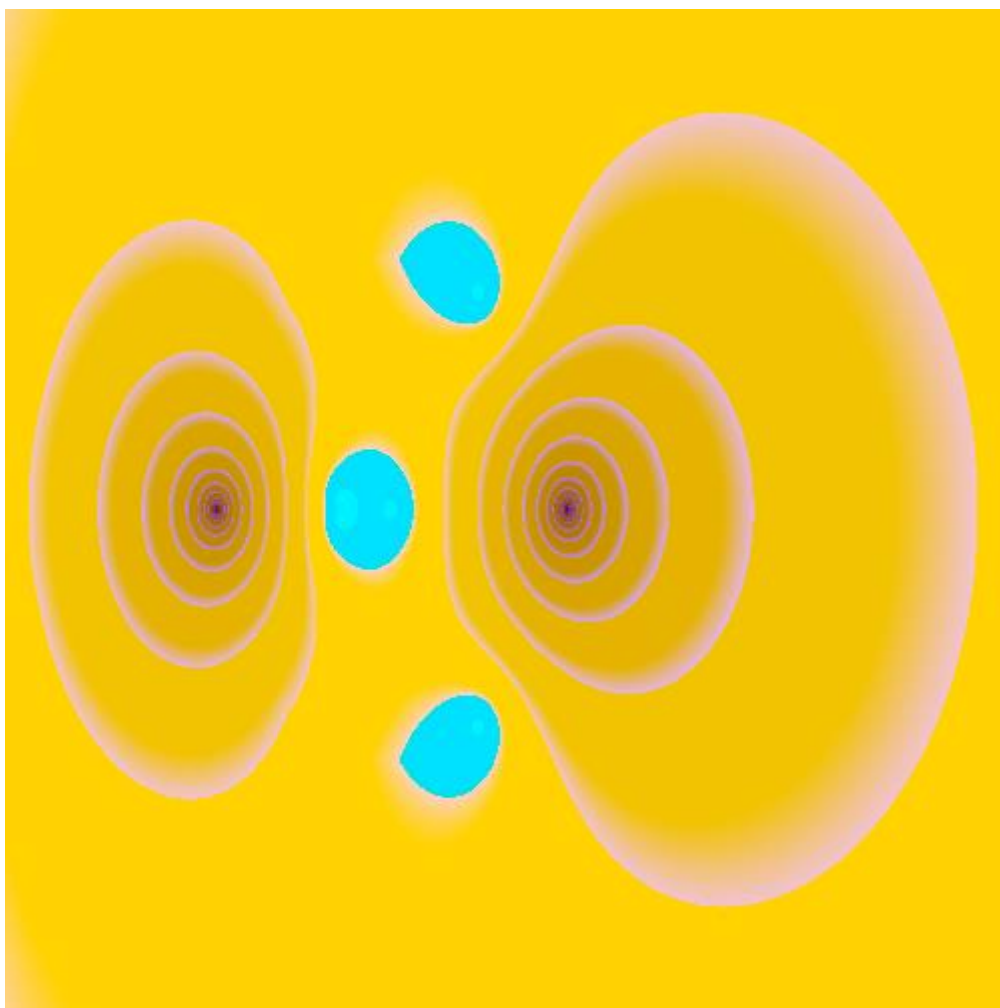


Figure 41.

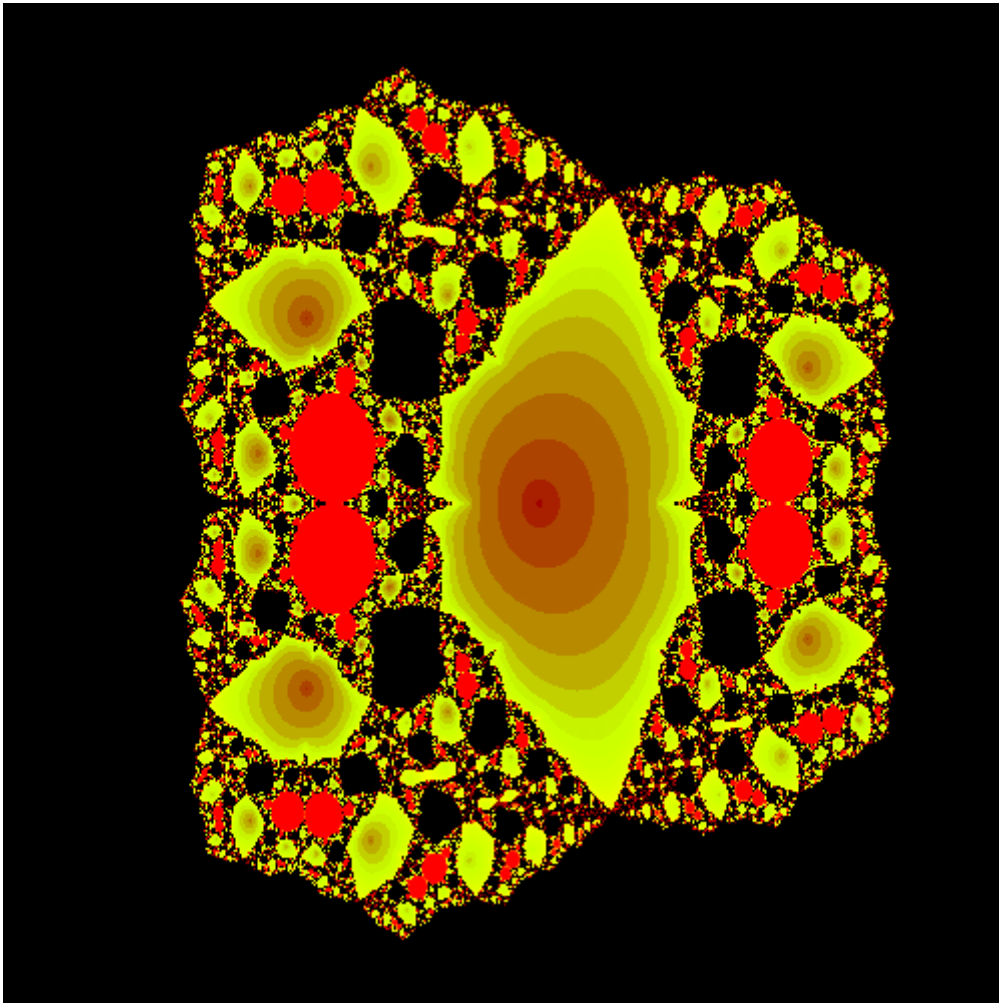


Figure 42.

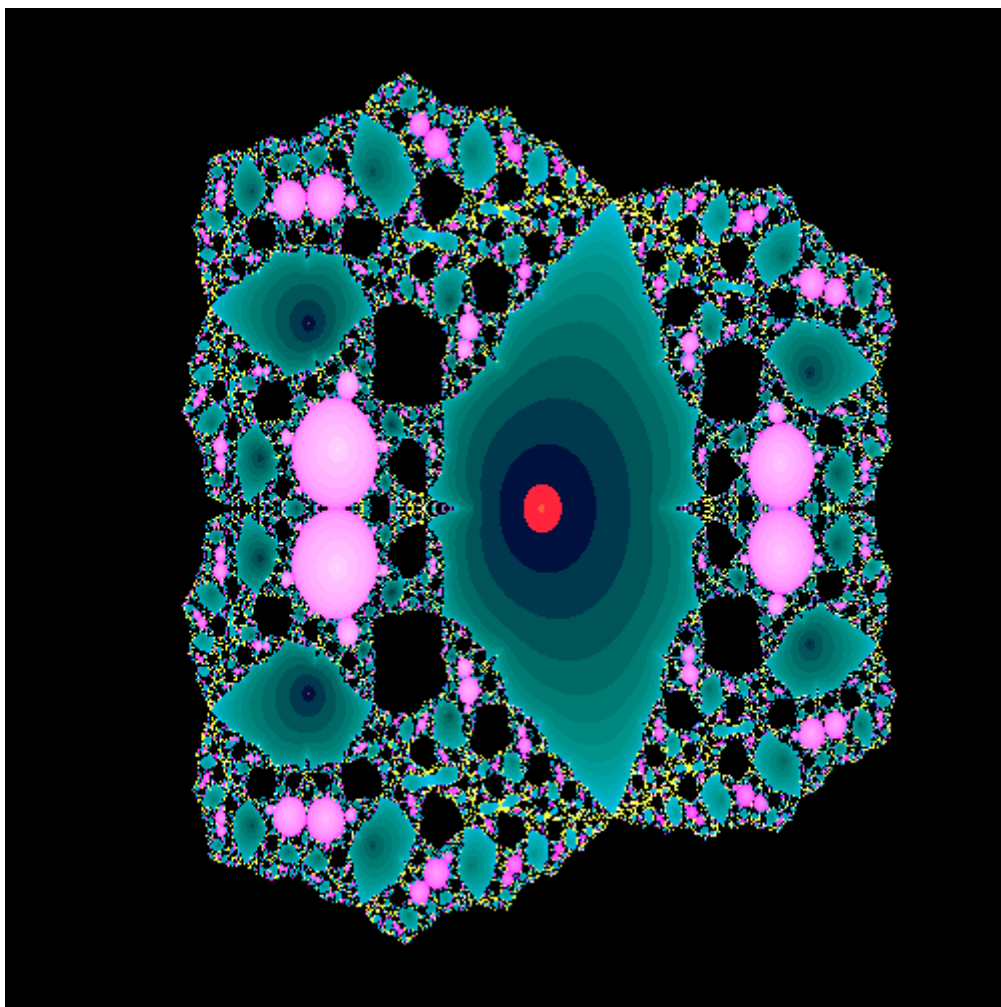


Figure 43.

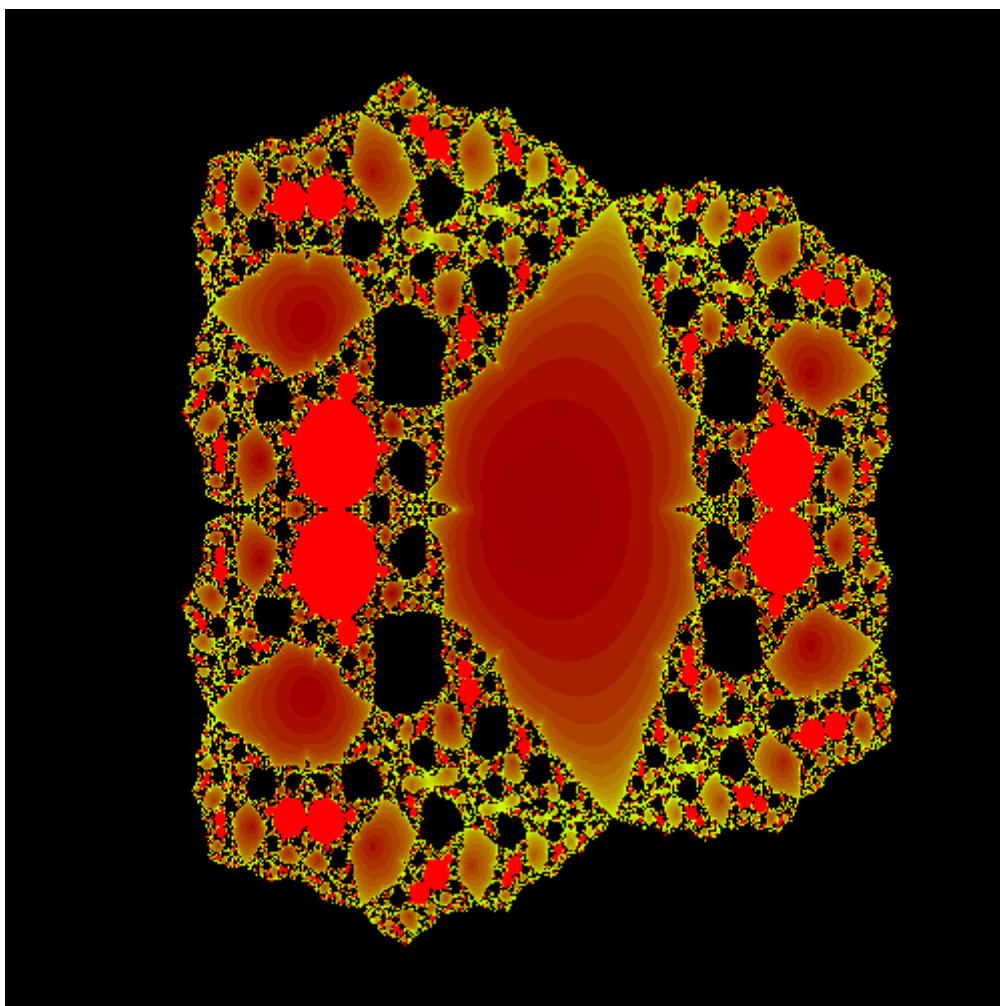


Figure 44.

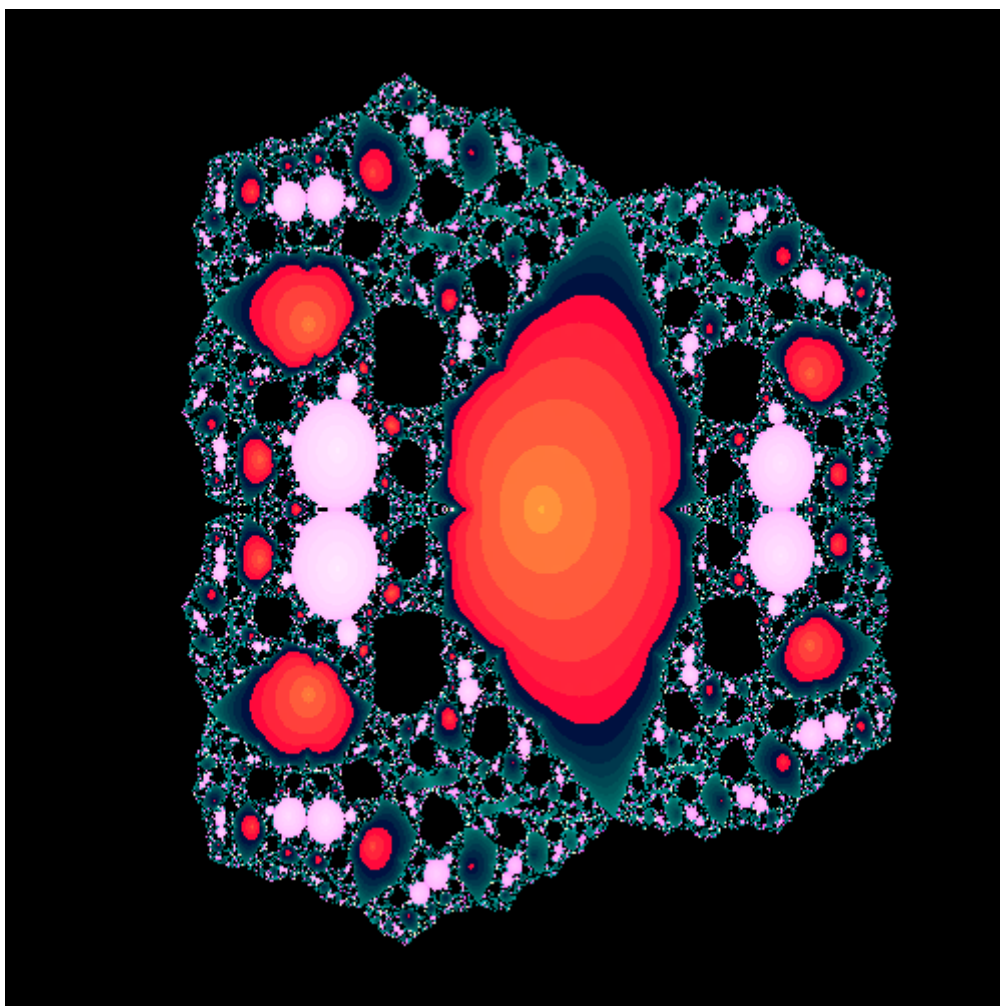


Figure 45.

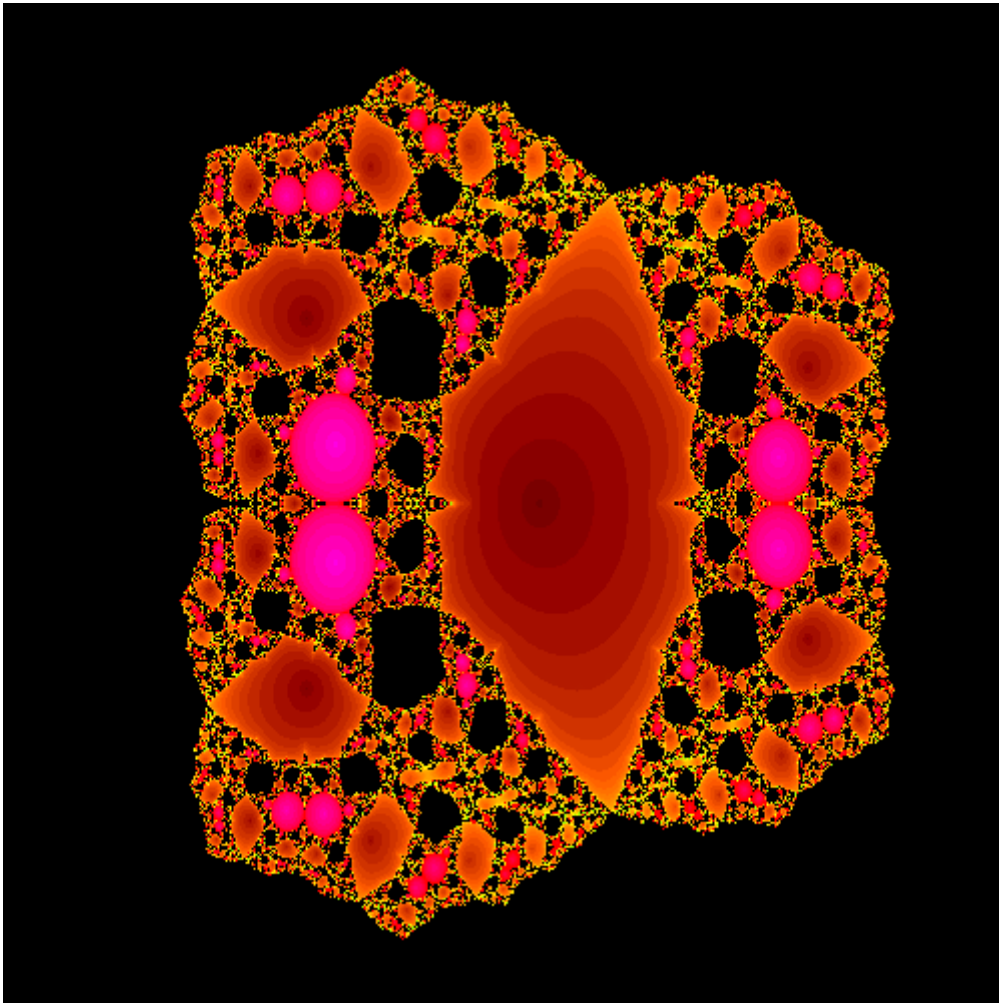


Figure 46.

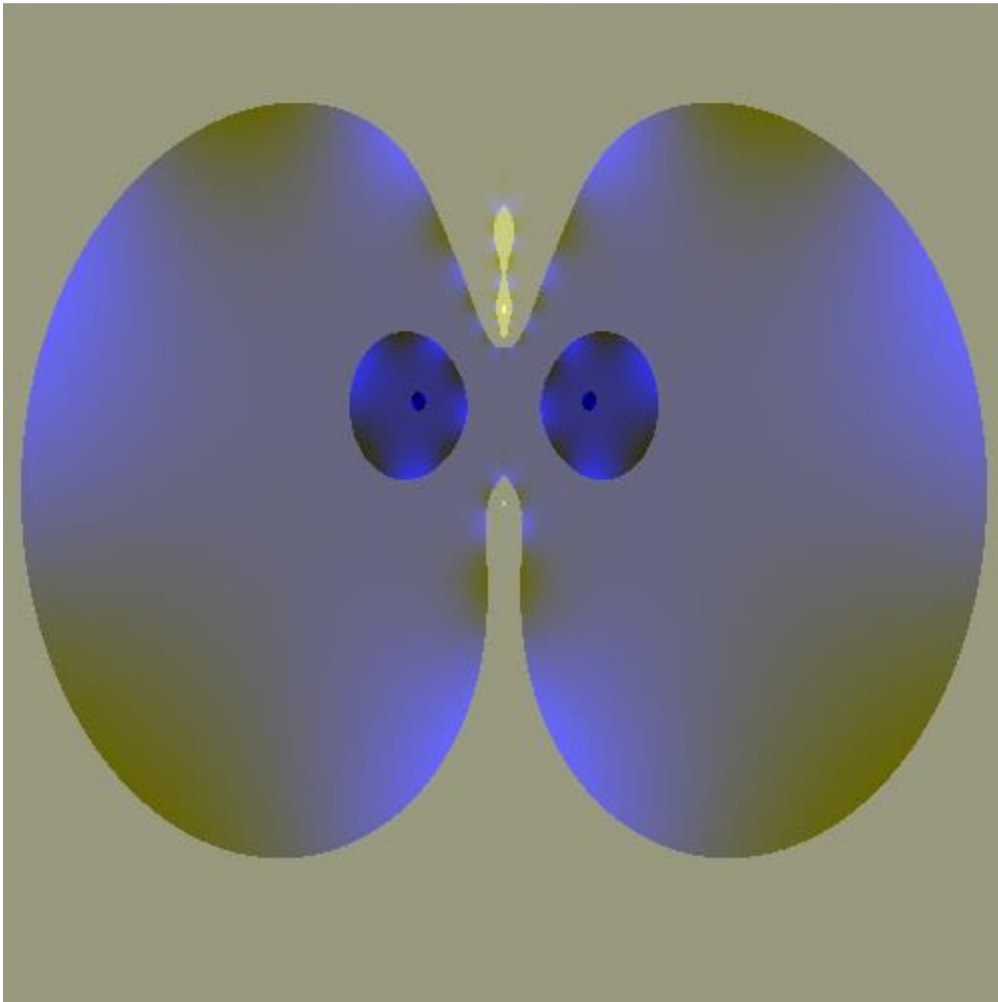


Figure 47.

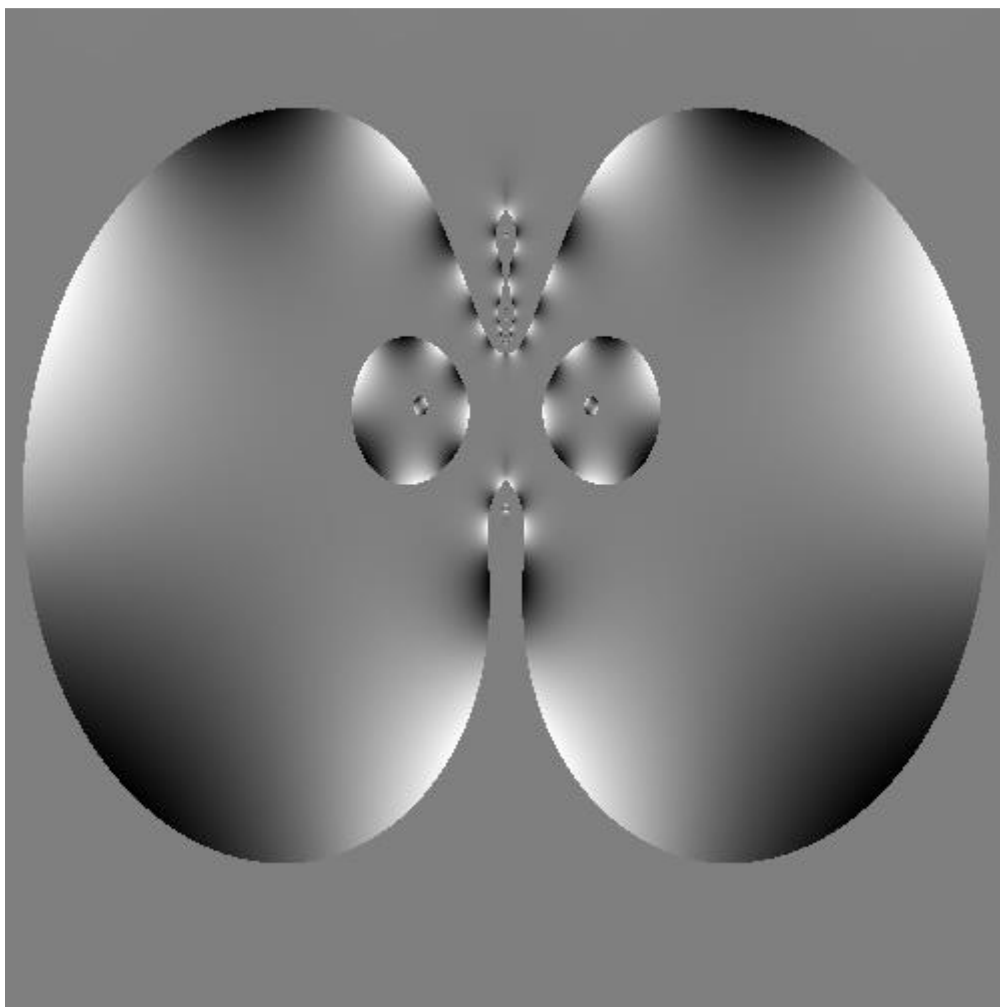


Figure 48.

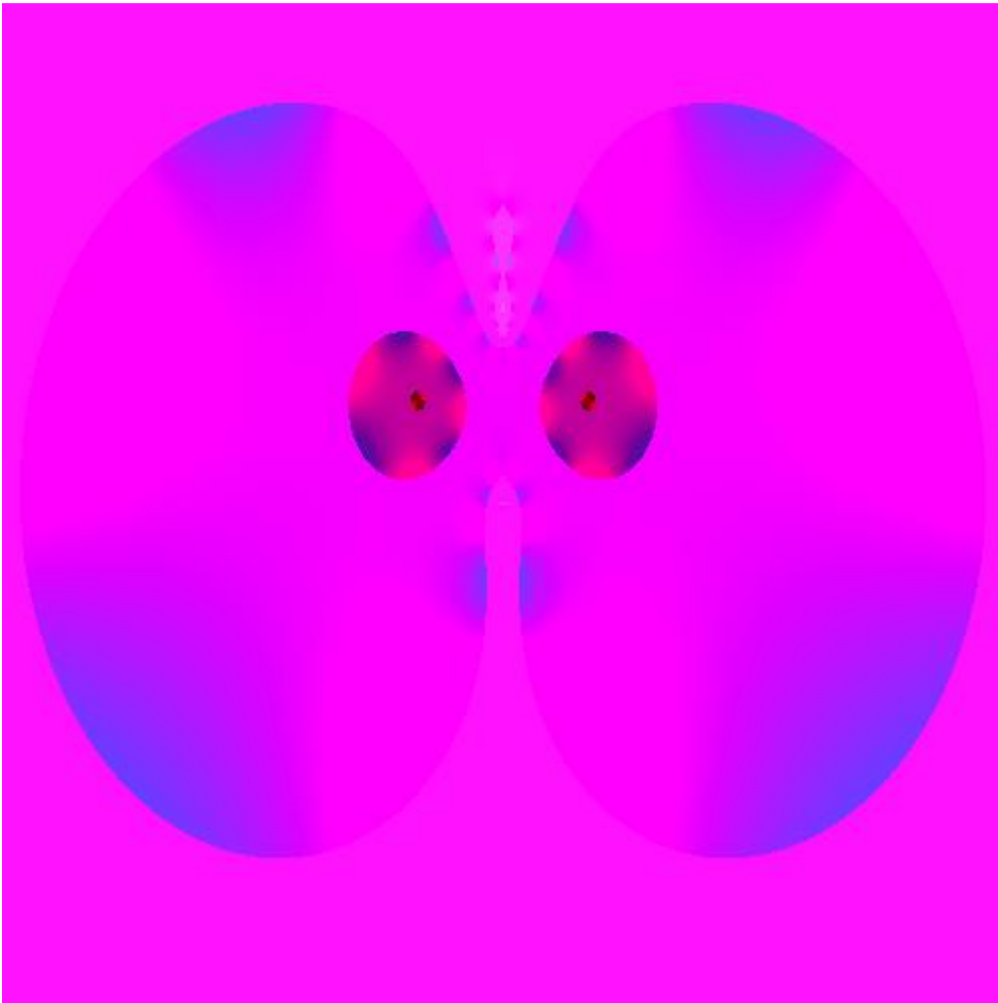


Figure 49.

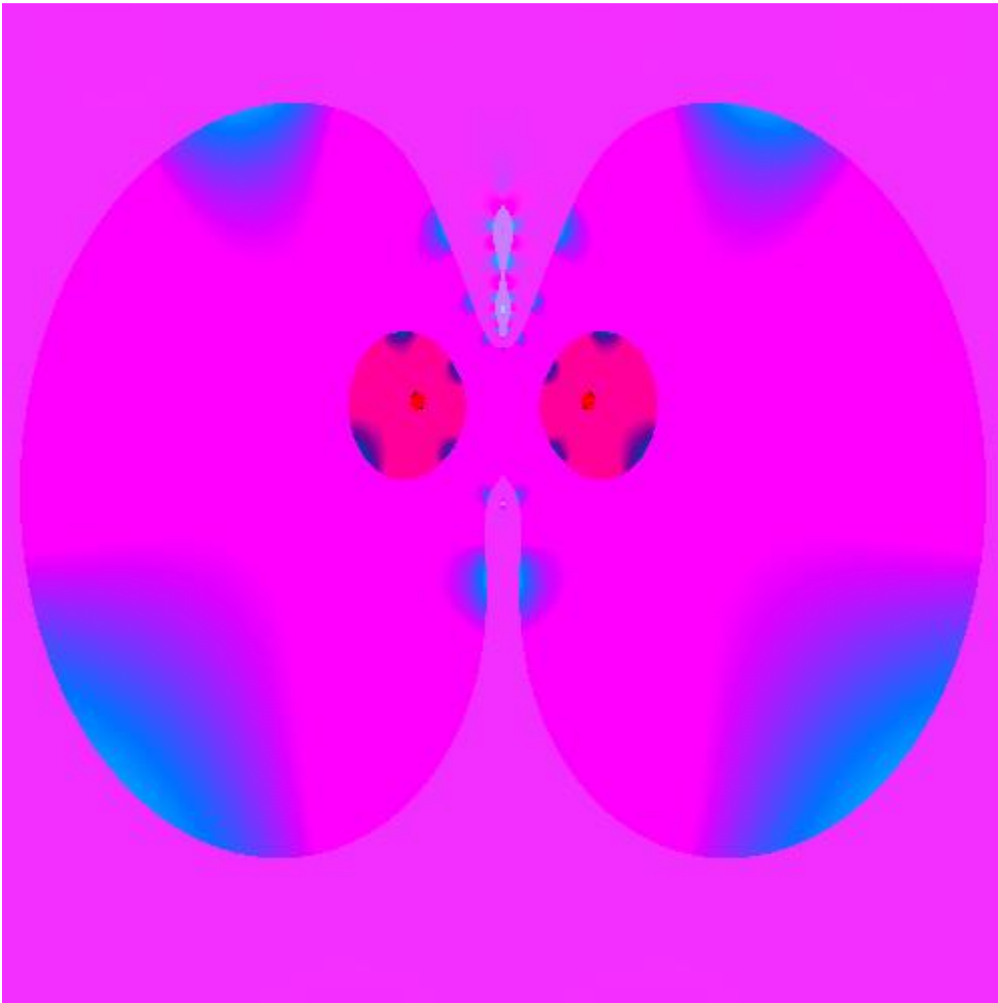


Figure 50.

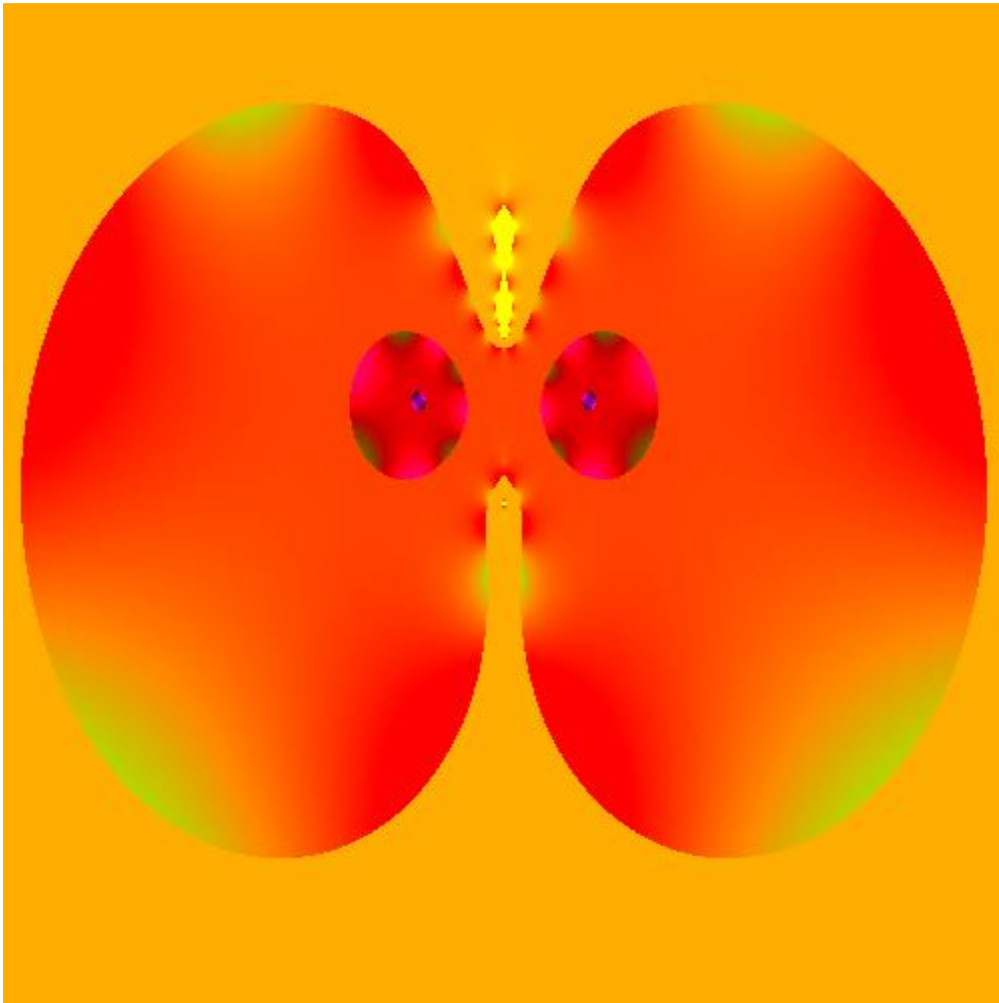


Figure 51.

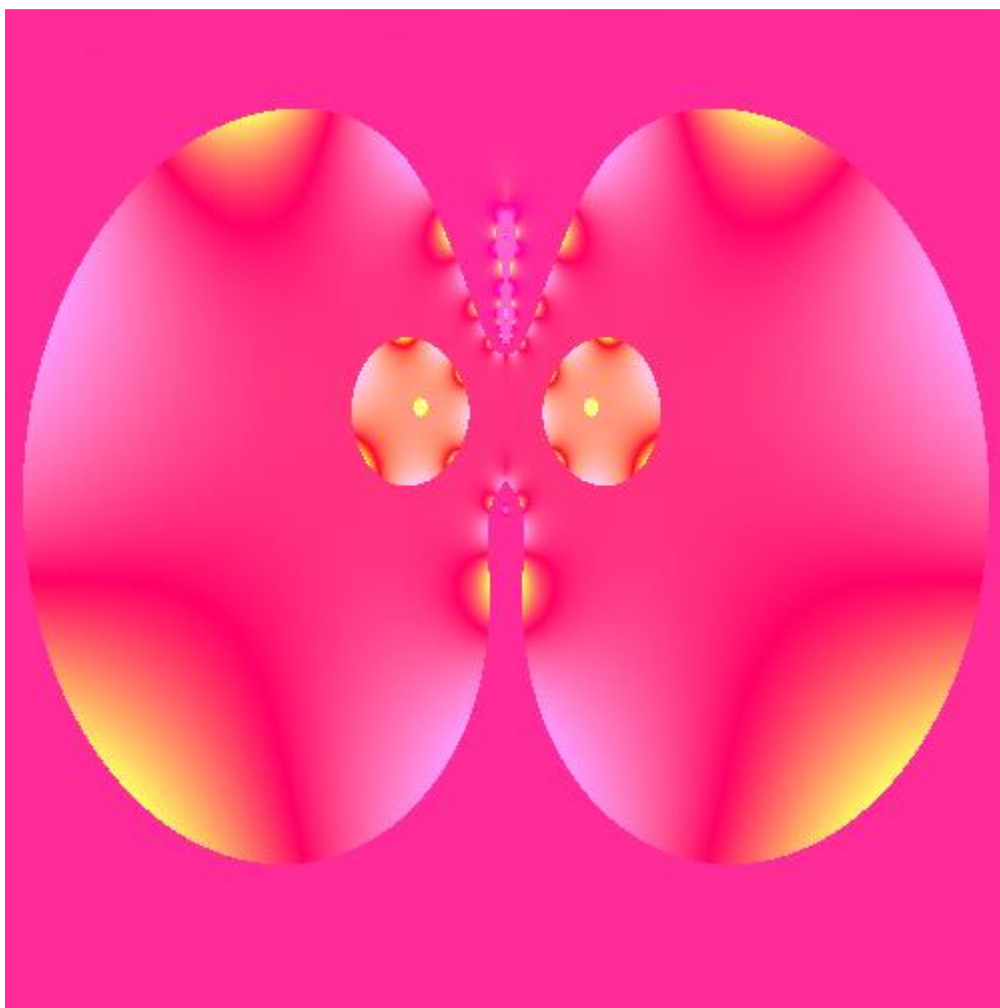


Figure 52.

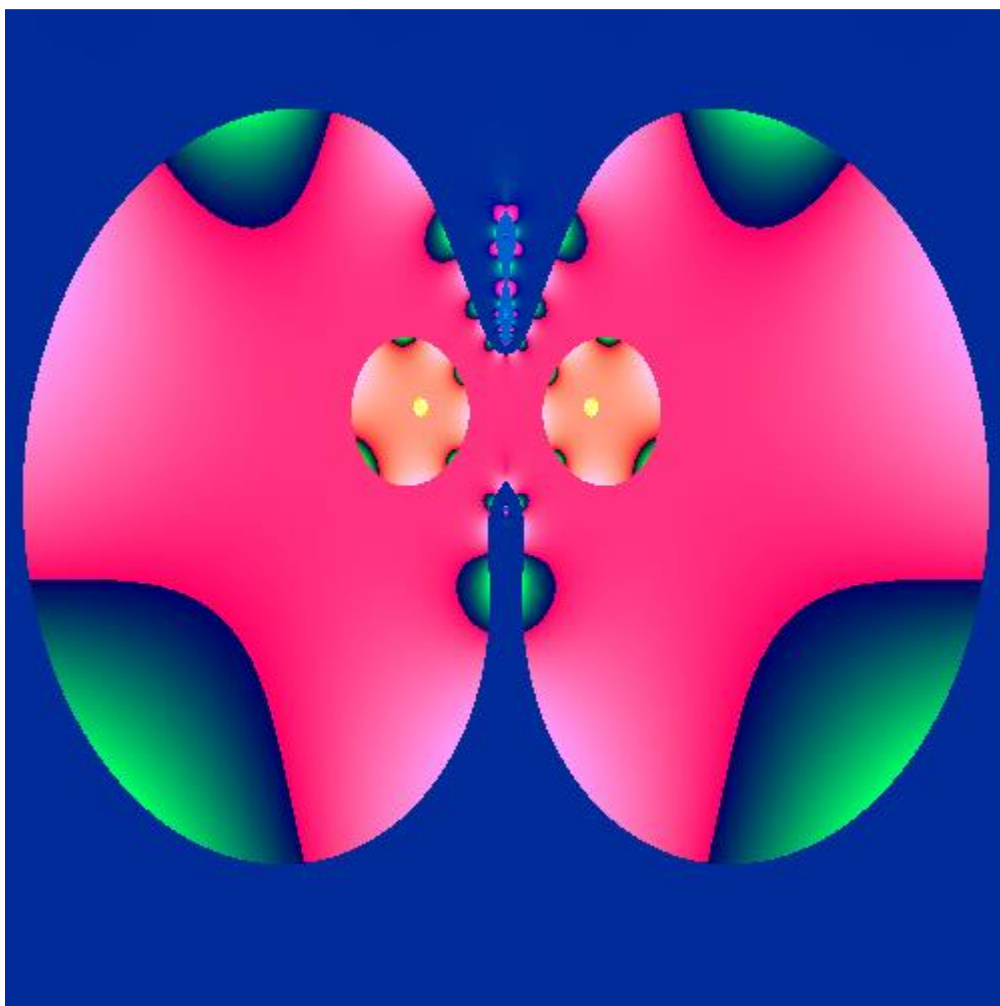


Figure 53.

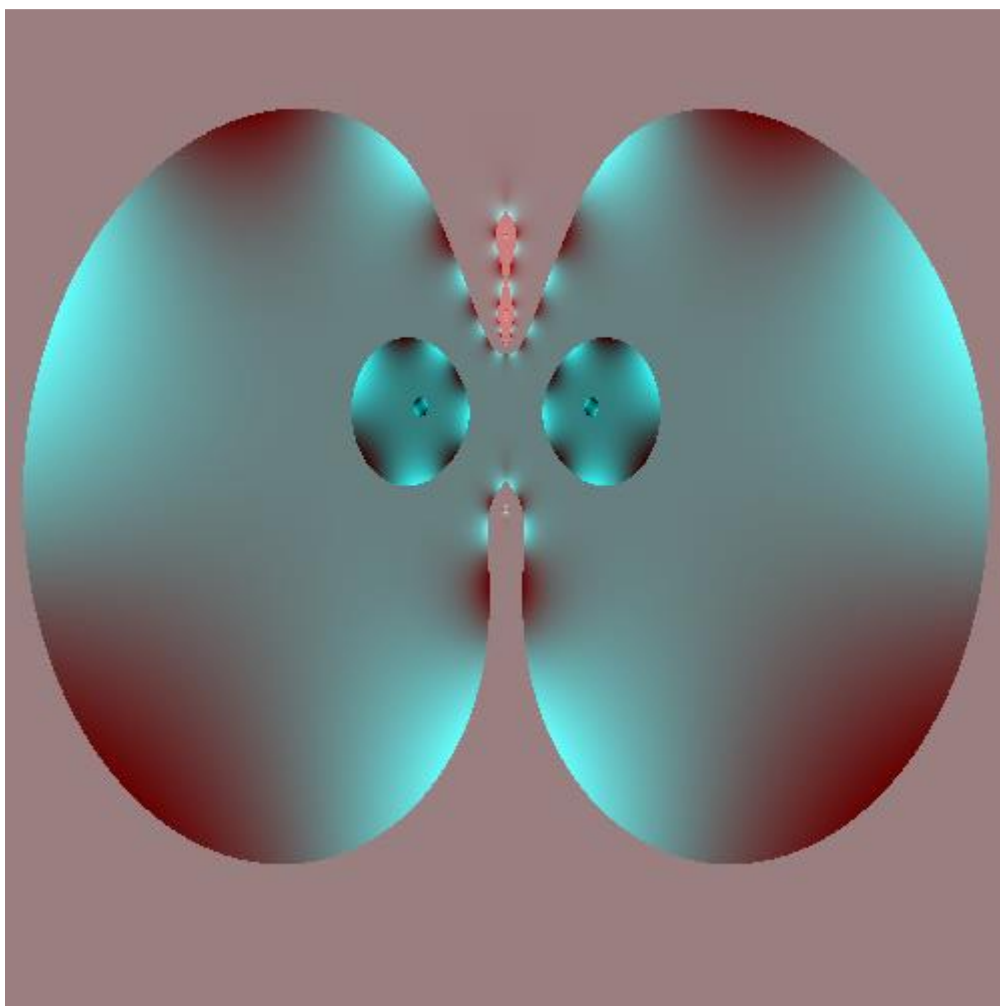


Figure 54.

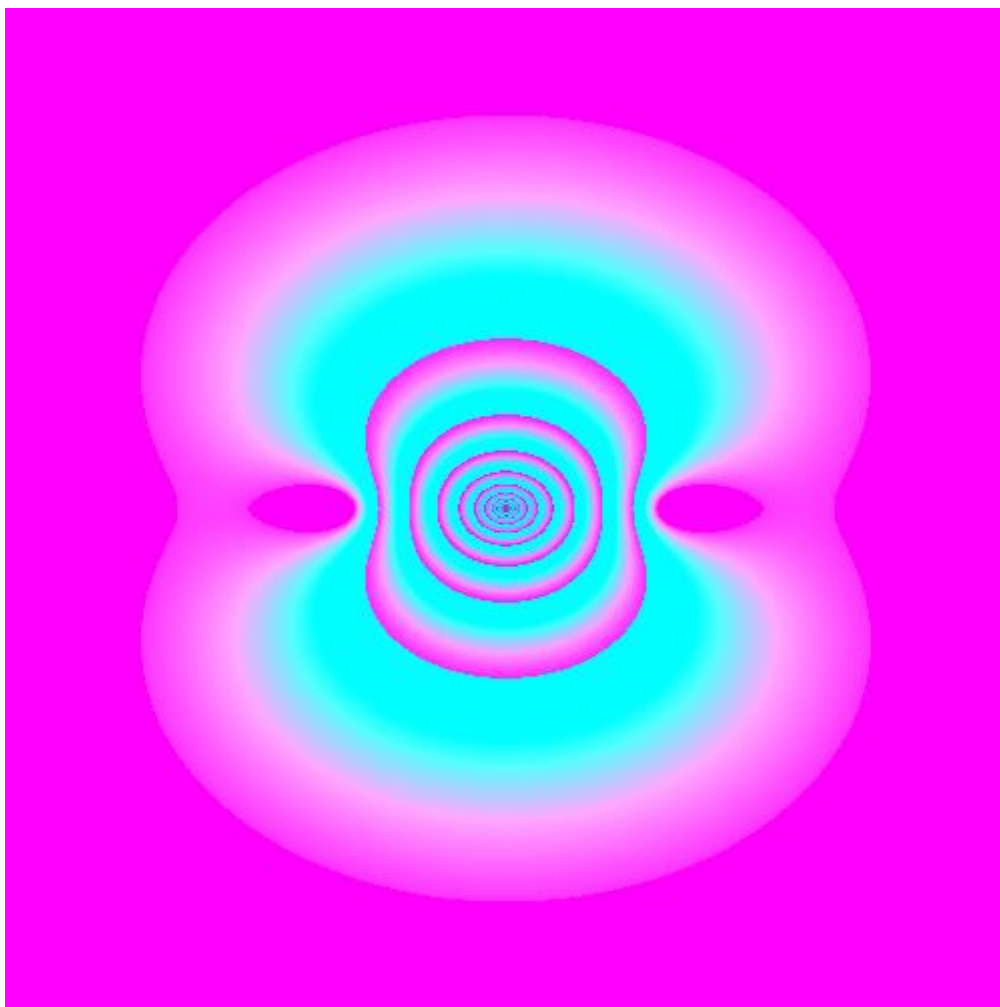


Figure 55.

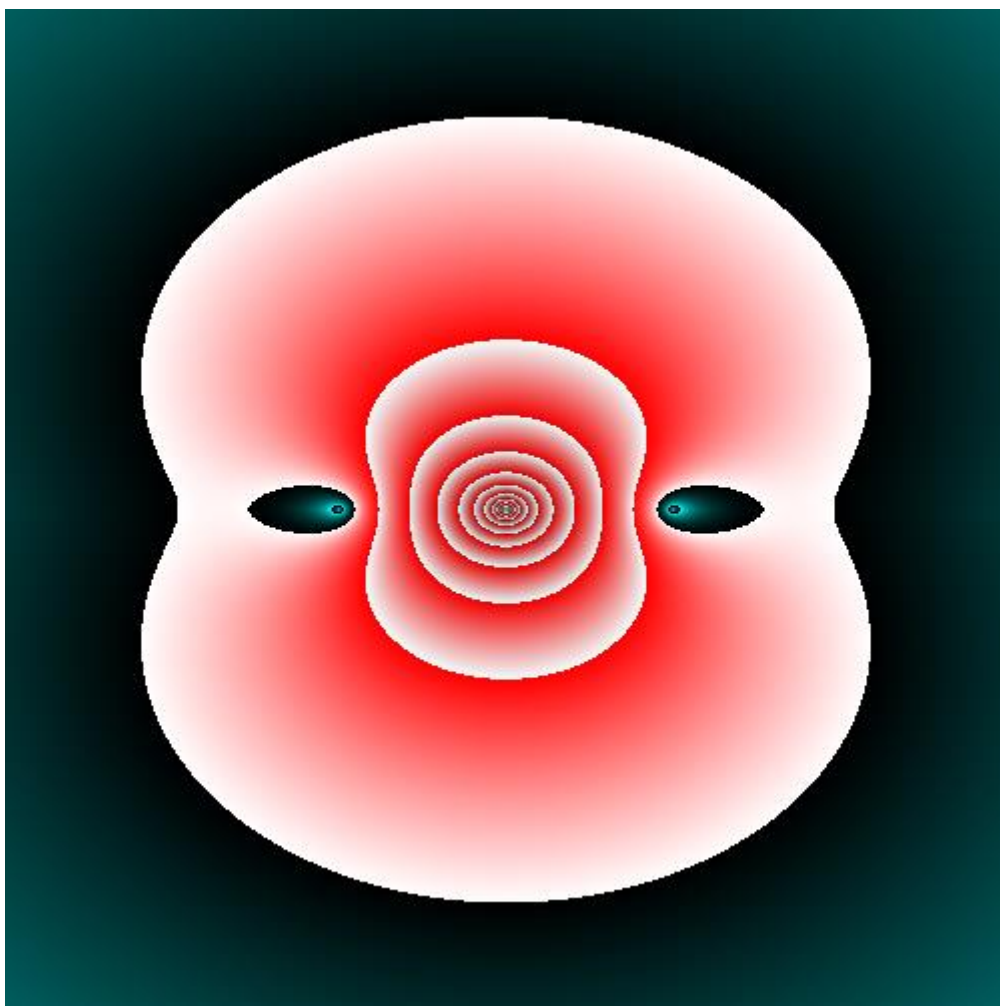


Figure 56.

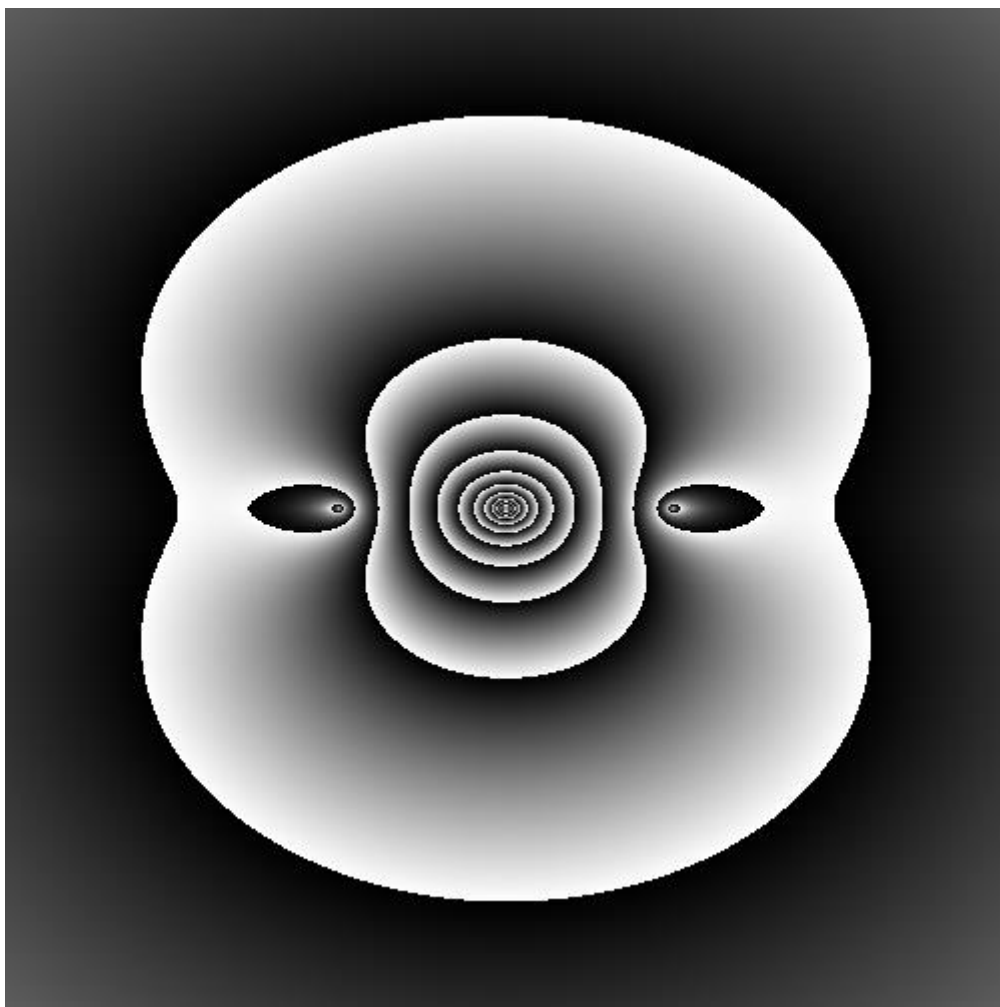


Figure 57.

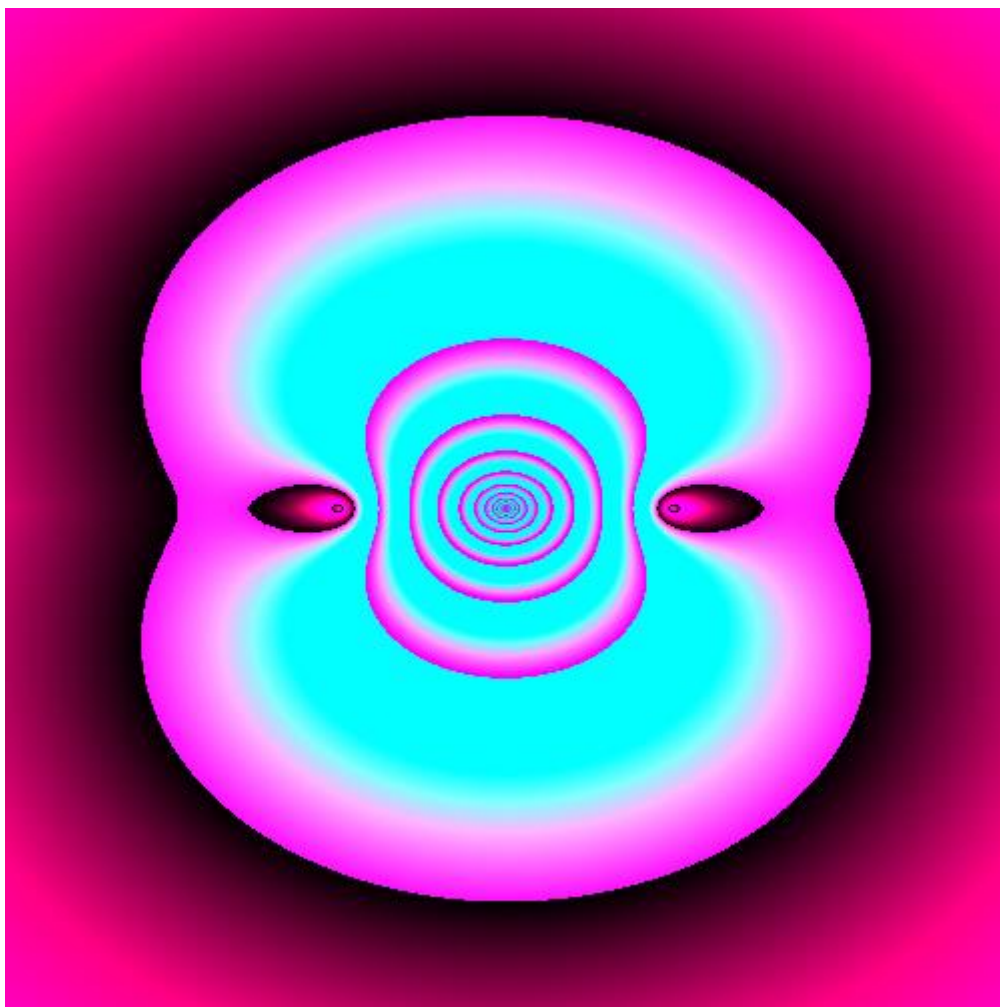


Figure 58.

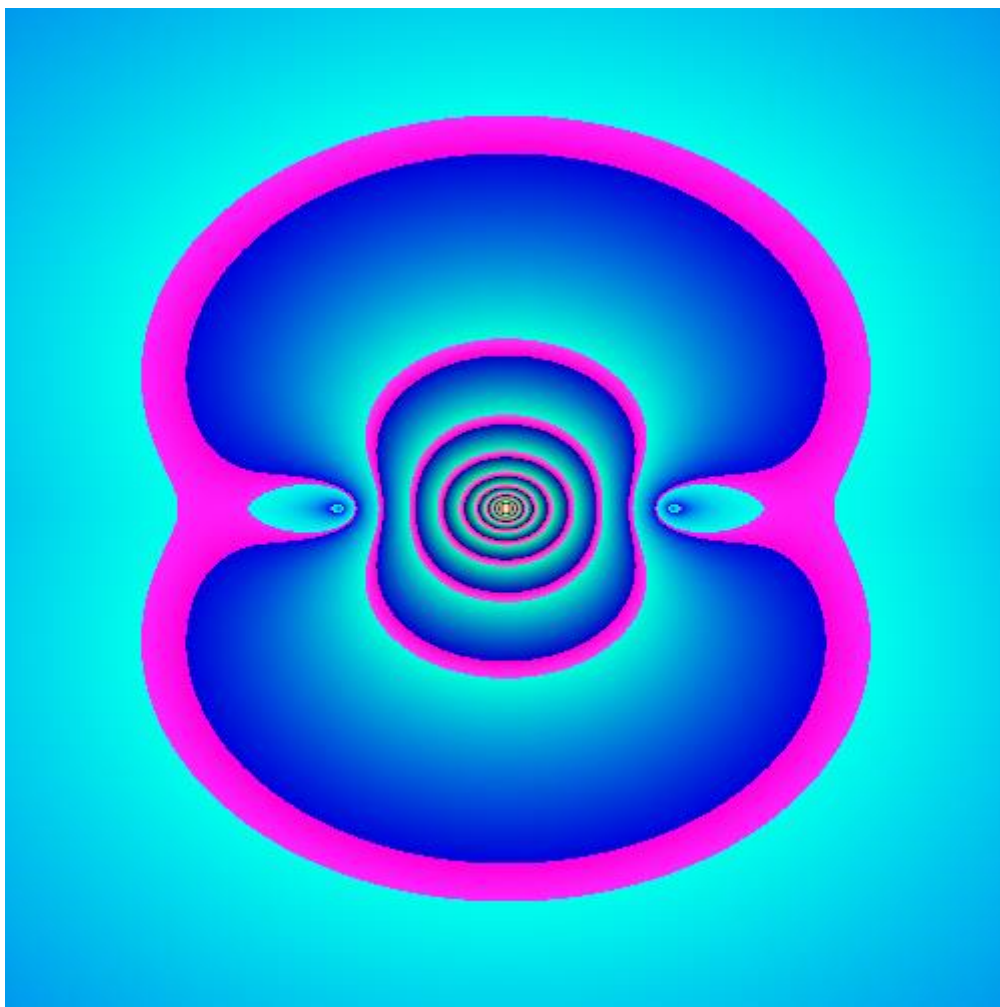


Figure 59.

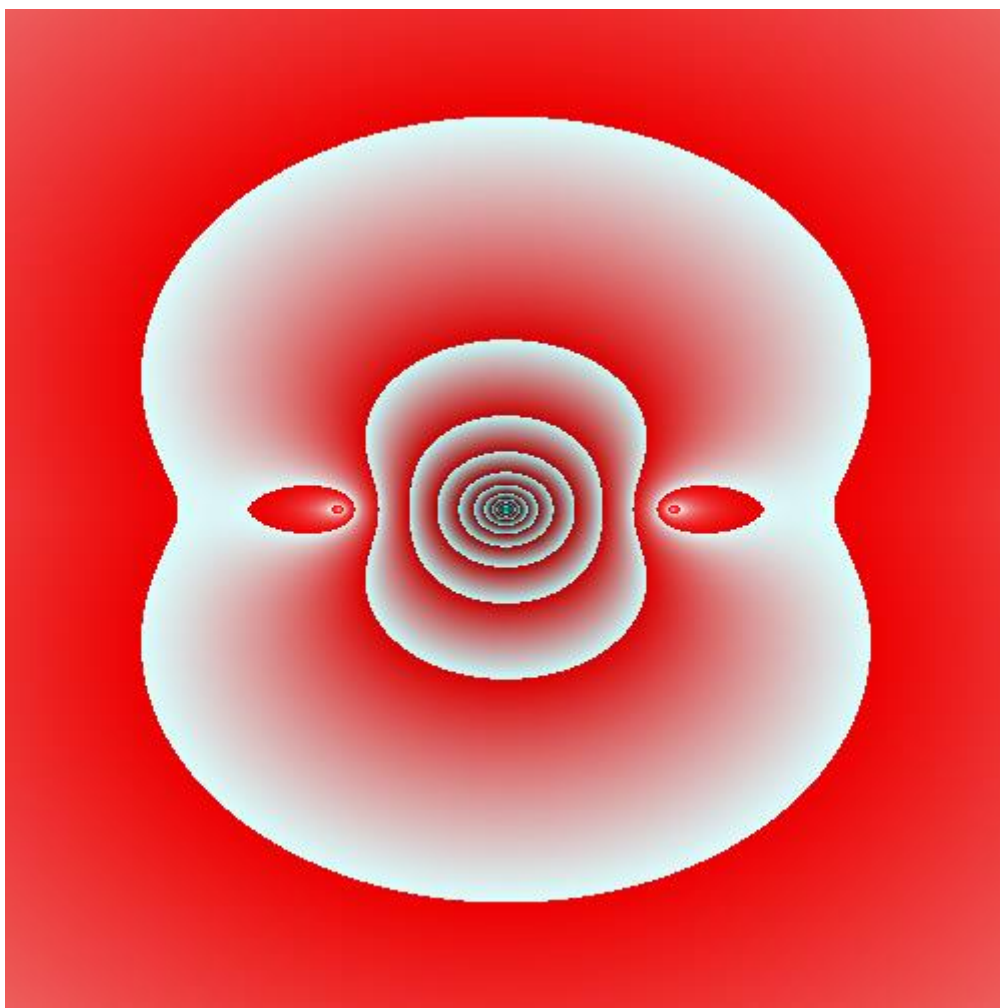


Figure 60.

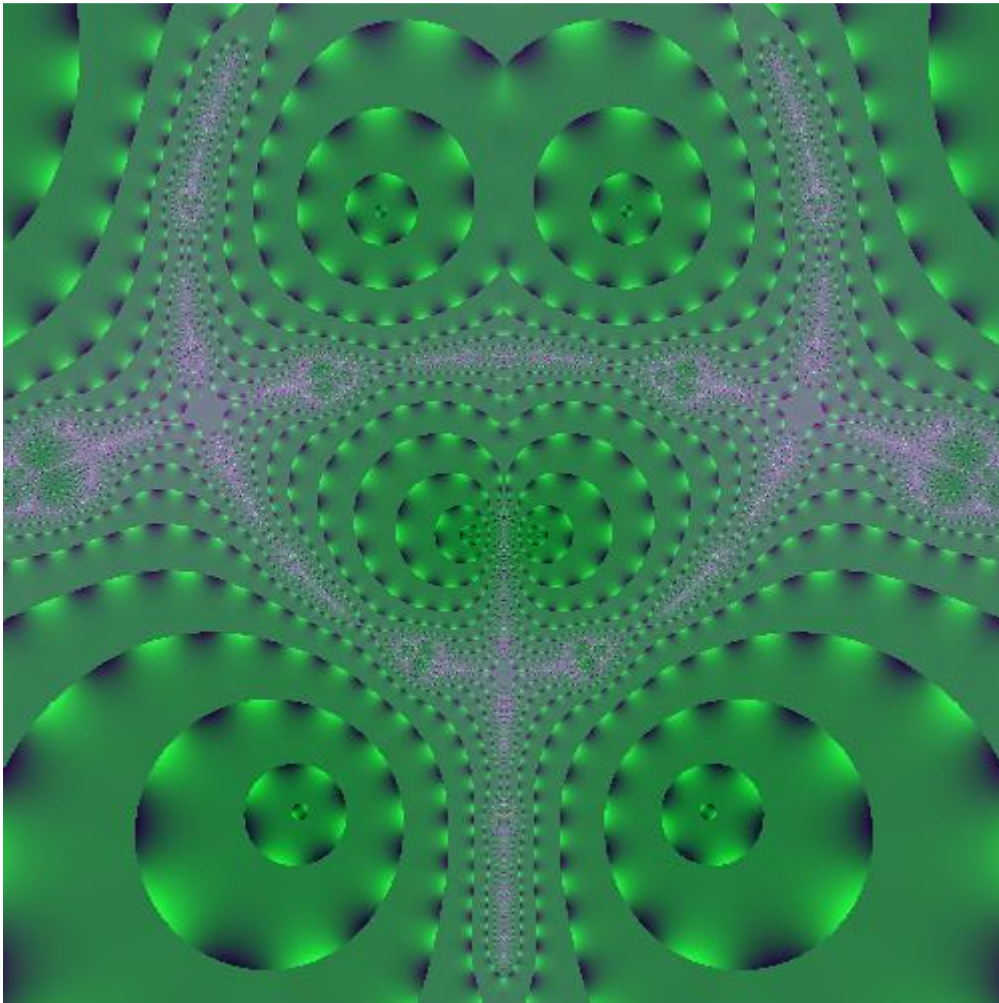


Figure 61.

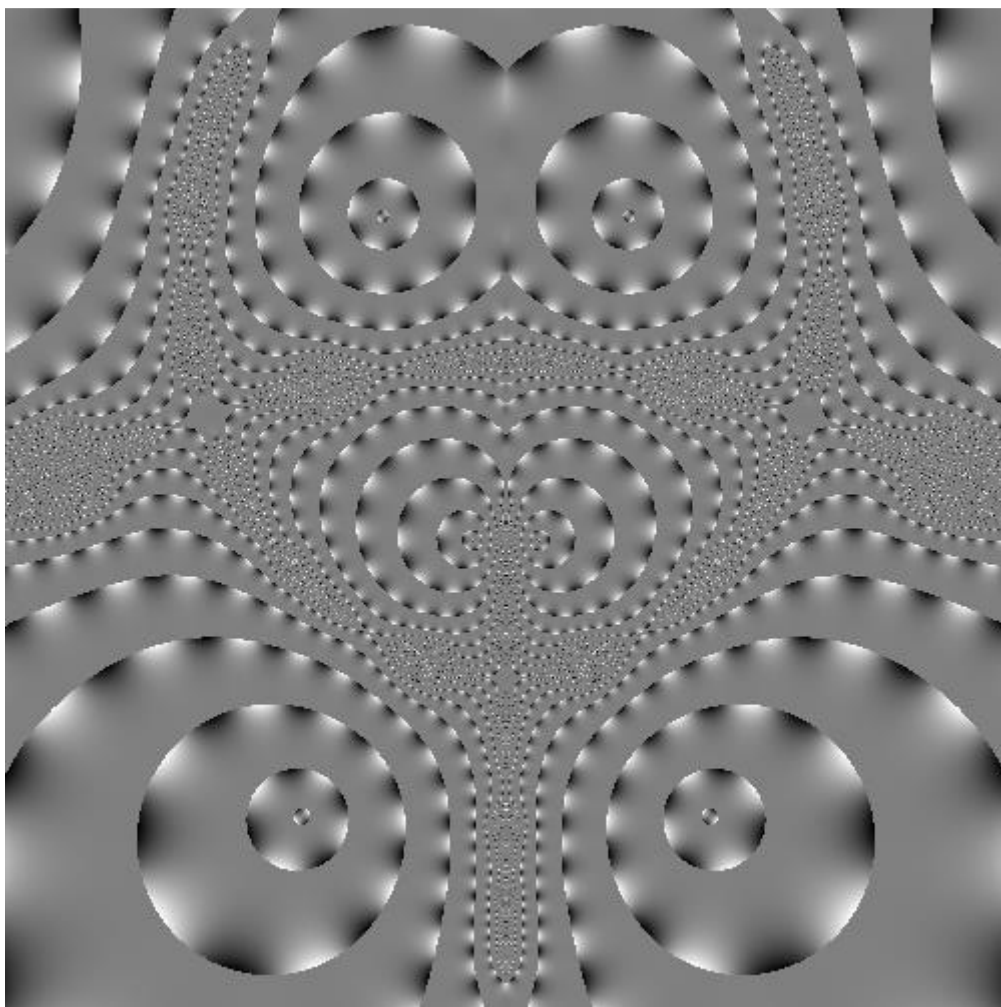


Figure 62.

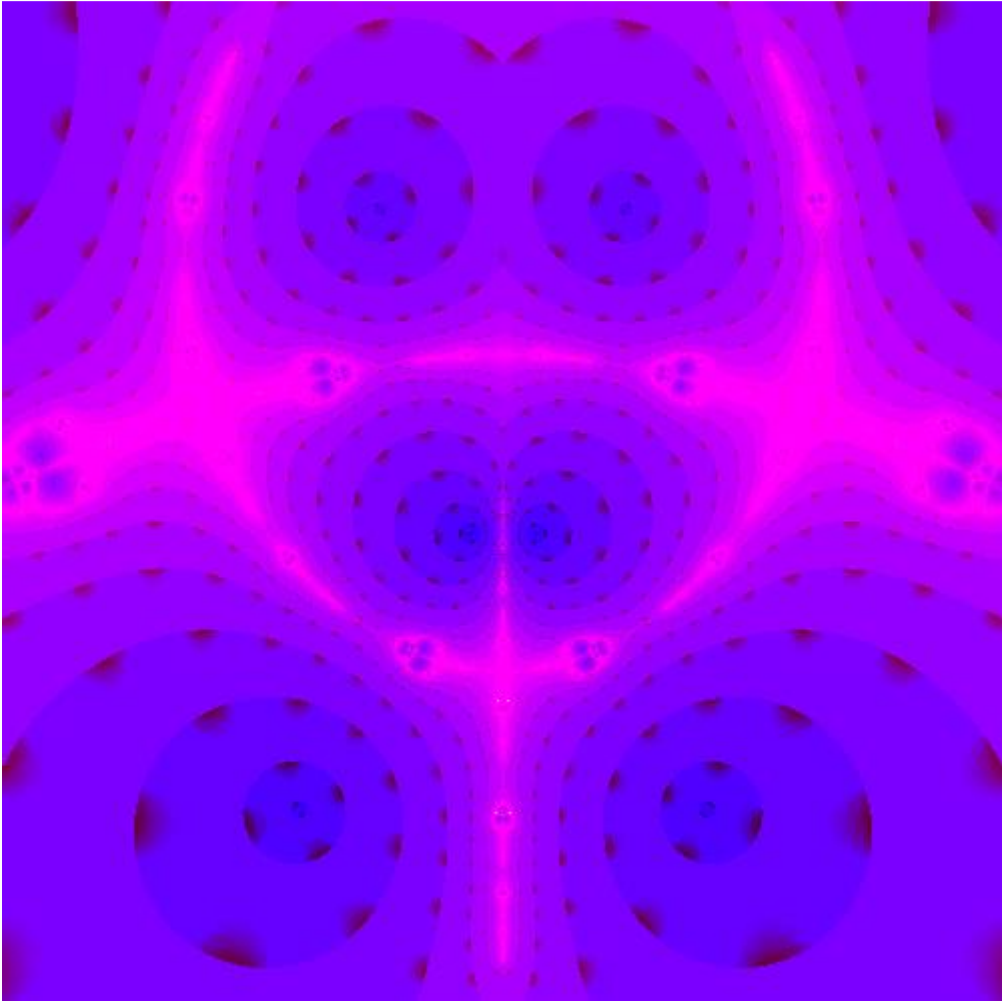


Figure 63.

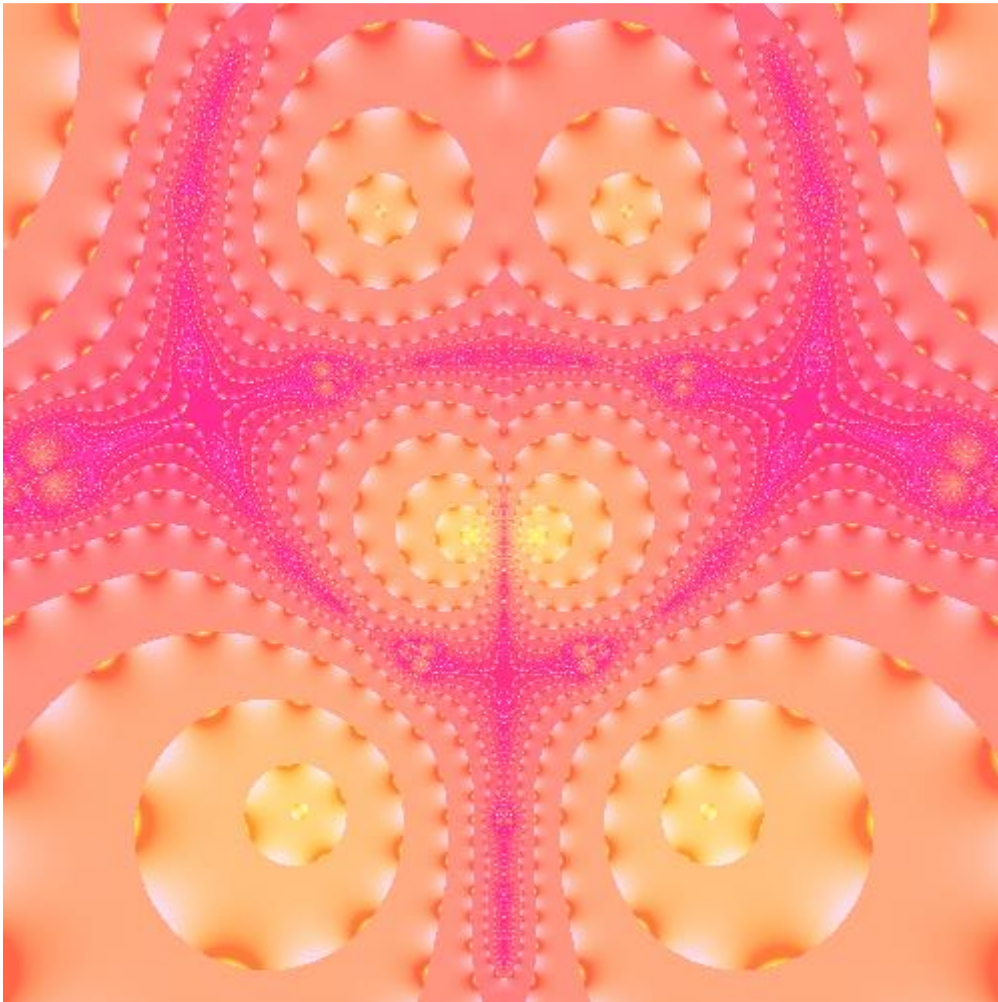


Figure 64.

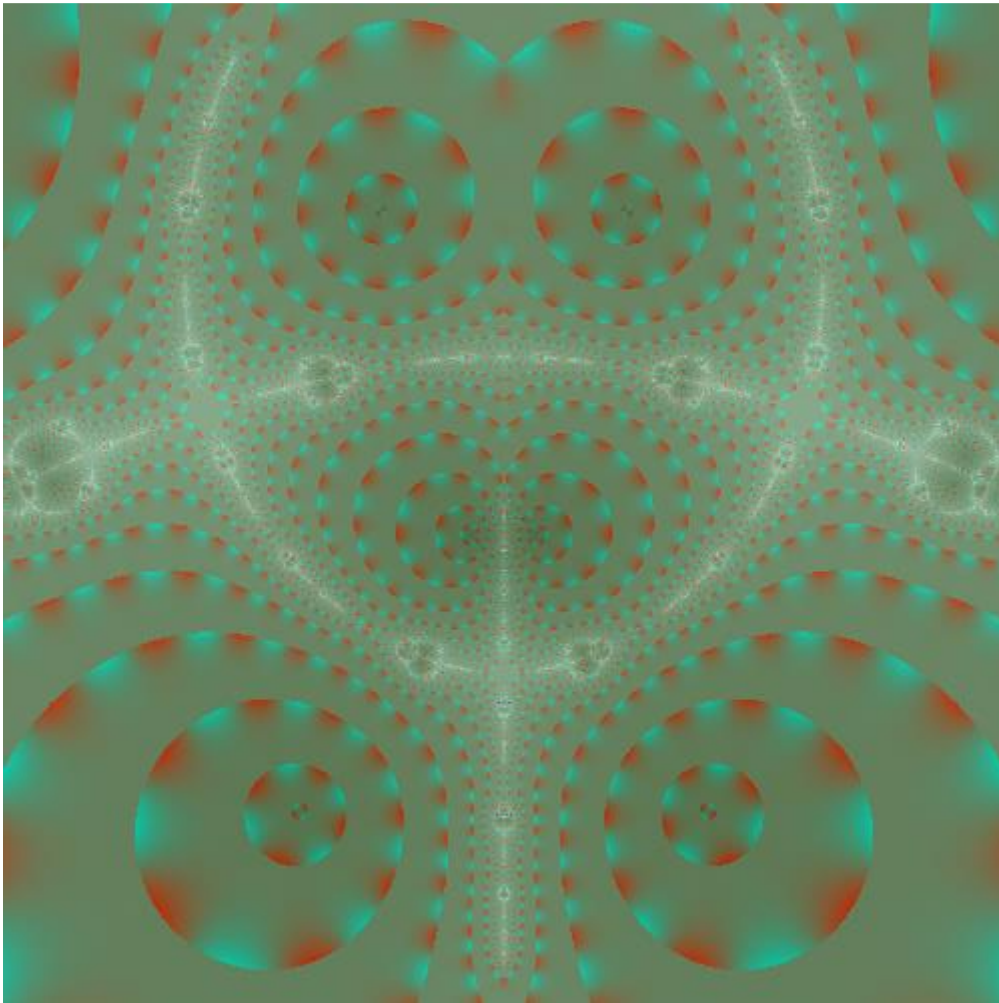


Figure 65.

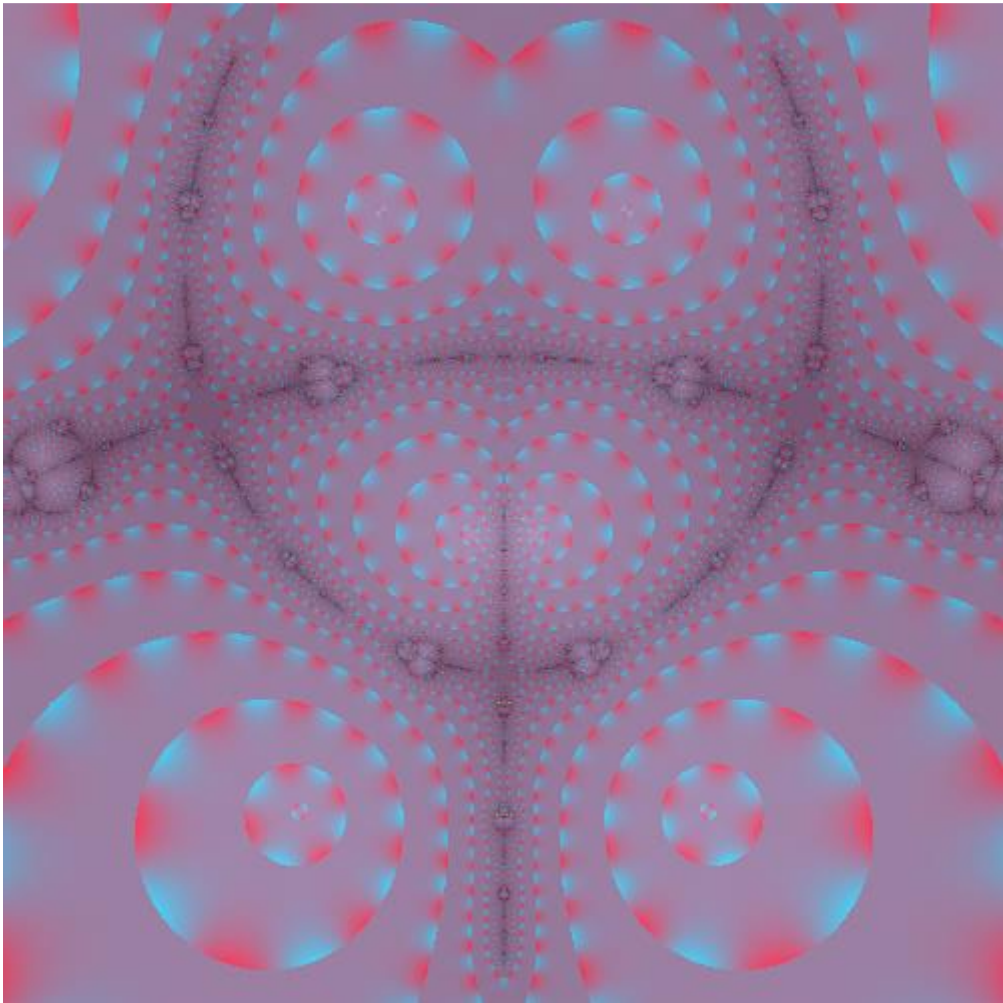


Figure 66.

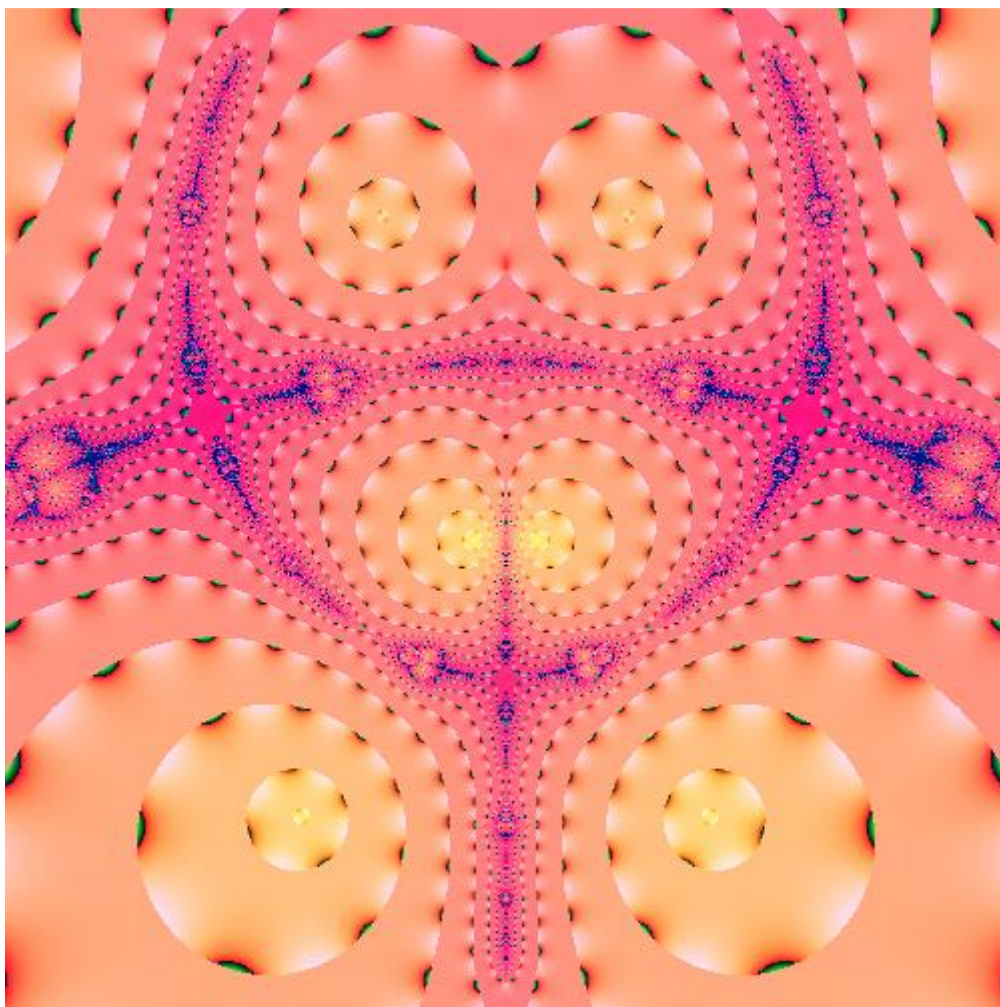


Figure 67.

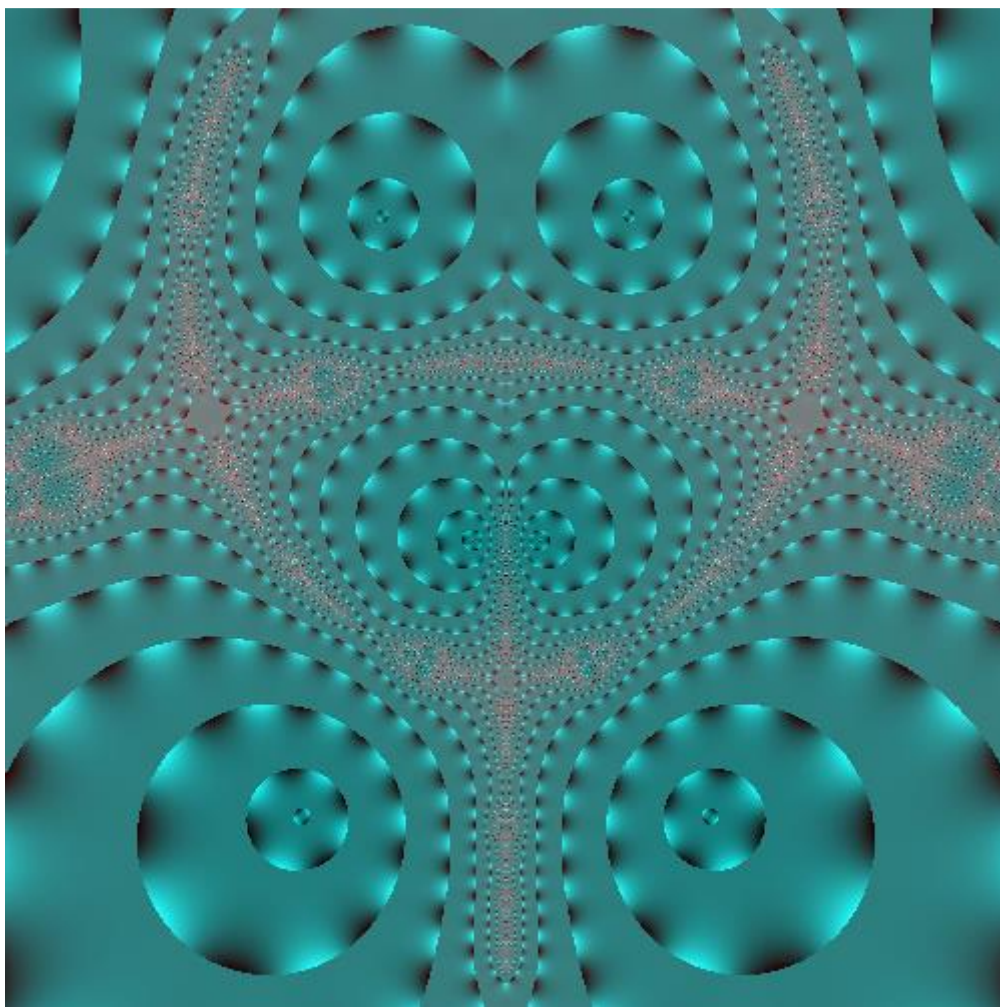


Figure 68.

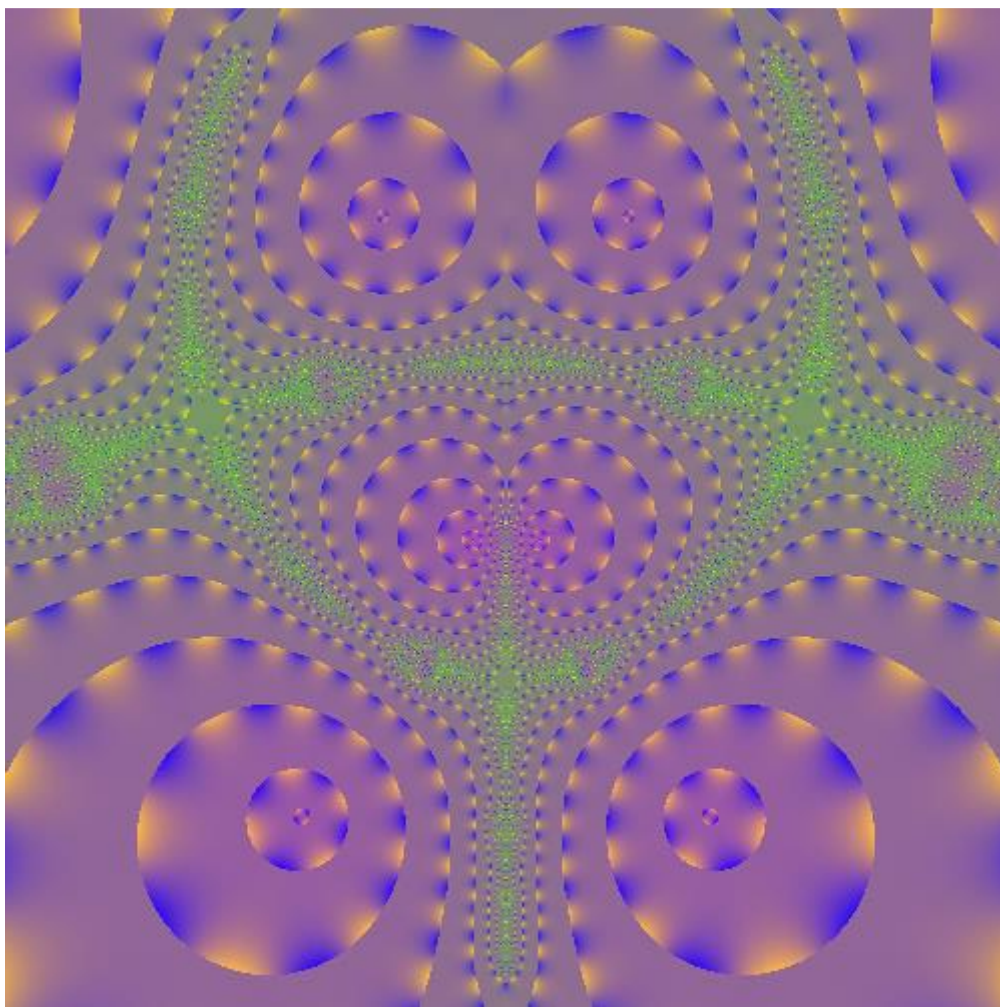


Figure 69.

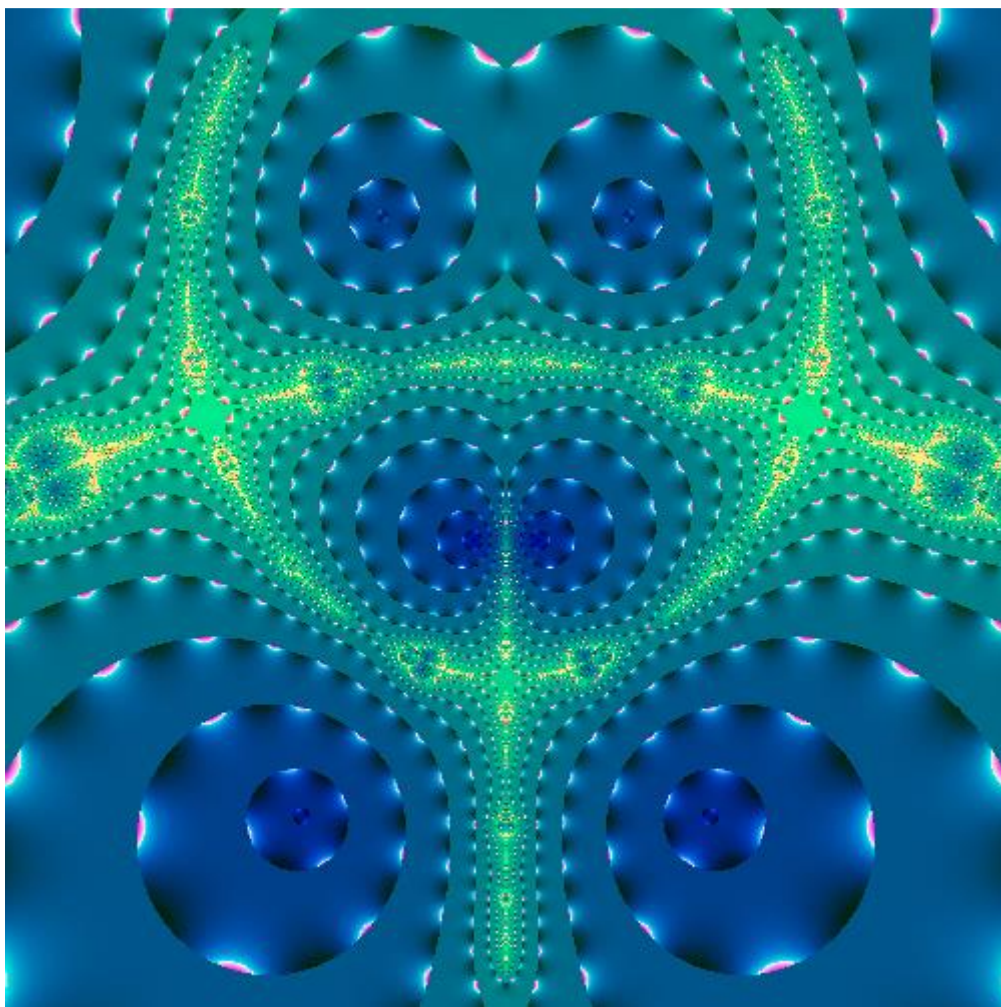


Figure 70.

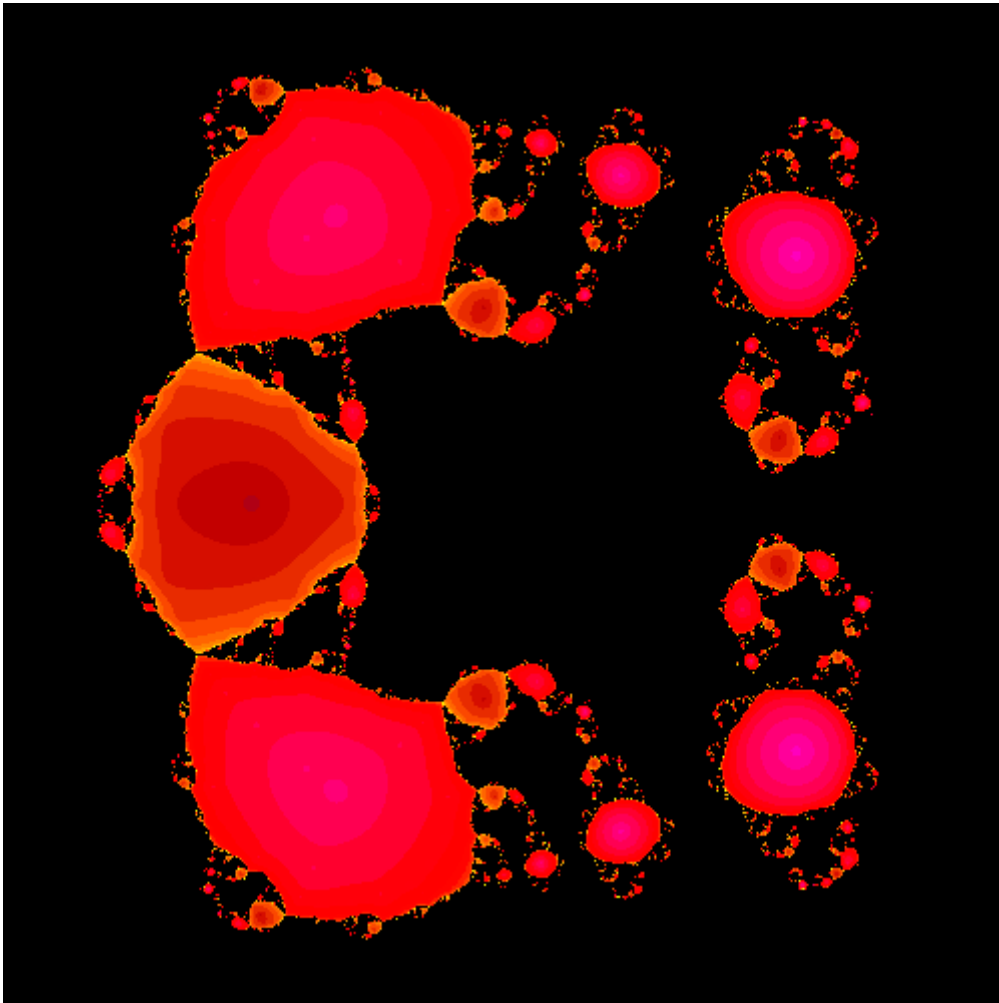


Figure 71.

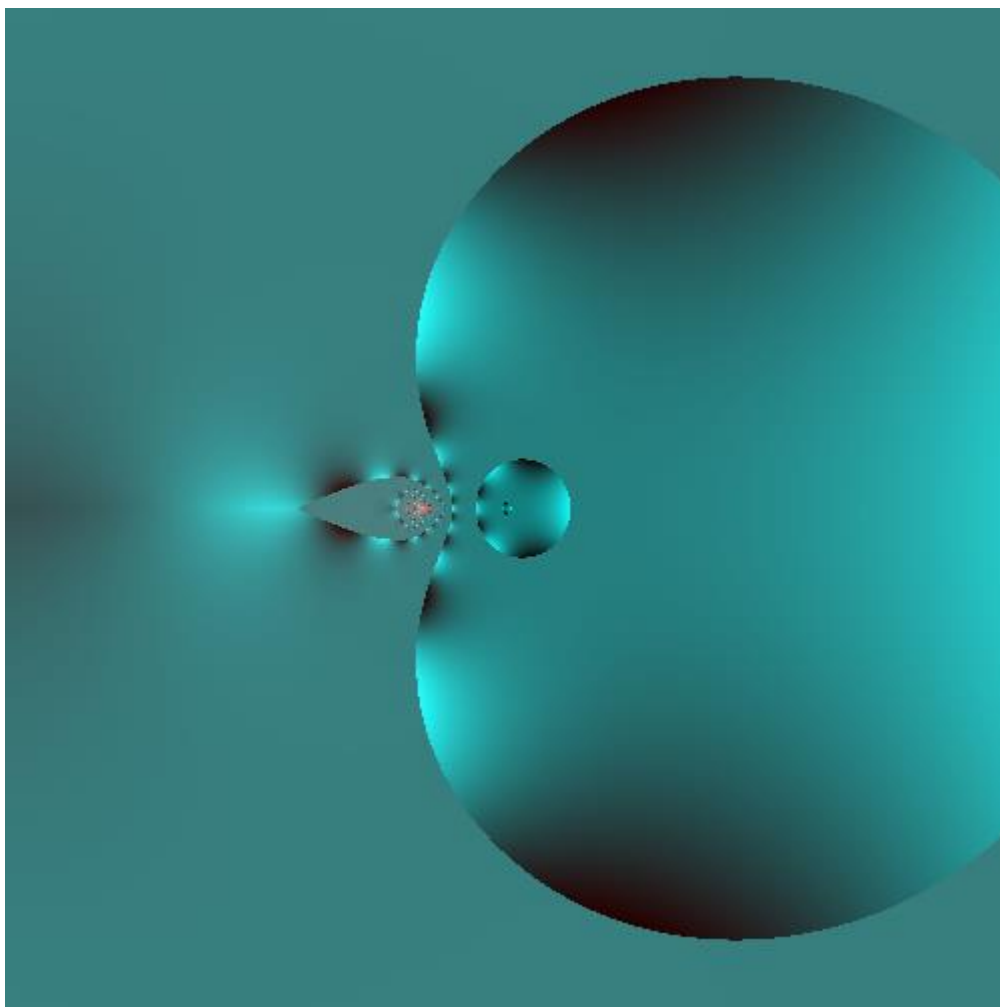


Figure 72.

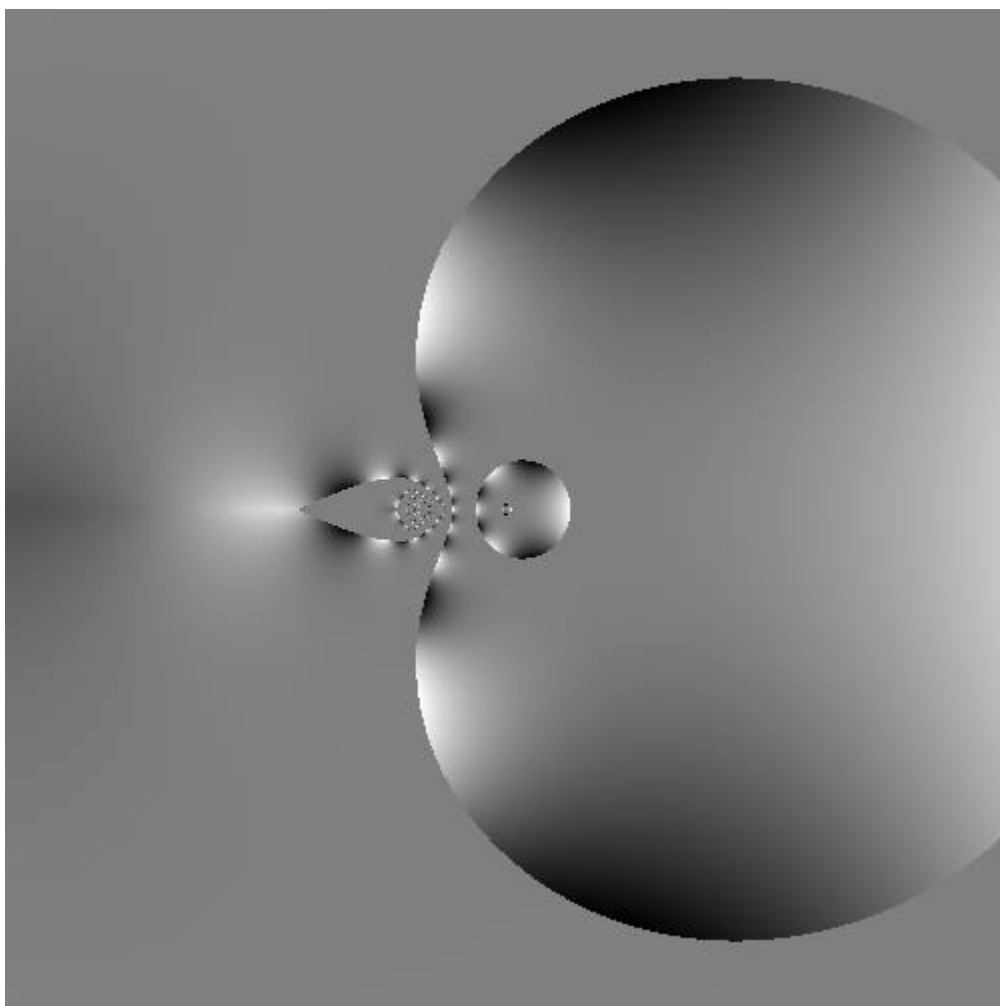


Figure 73.

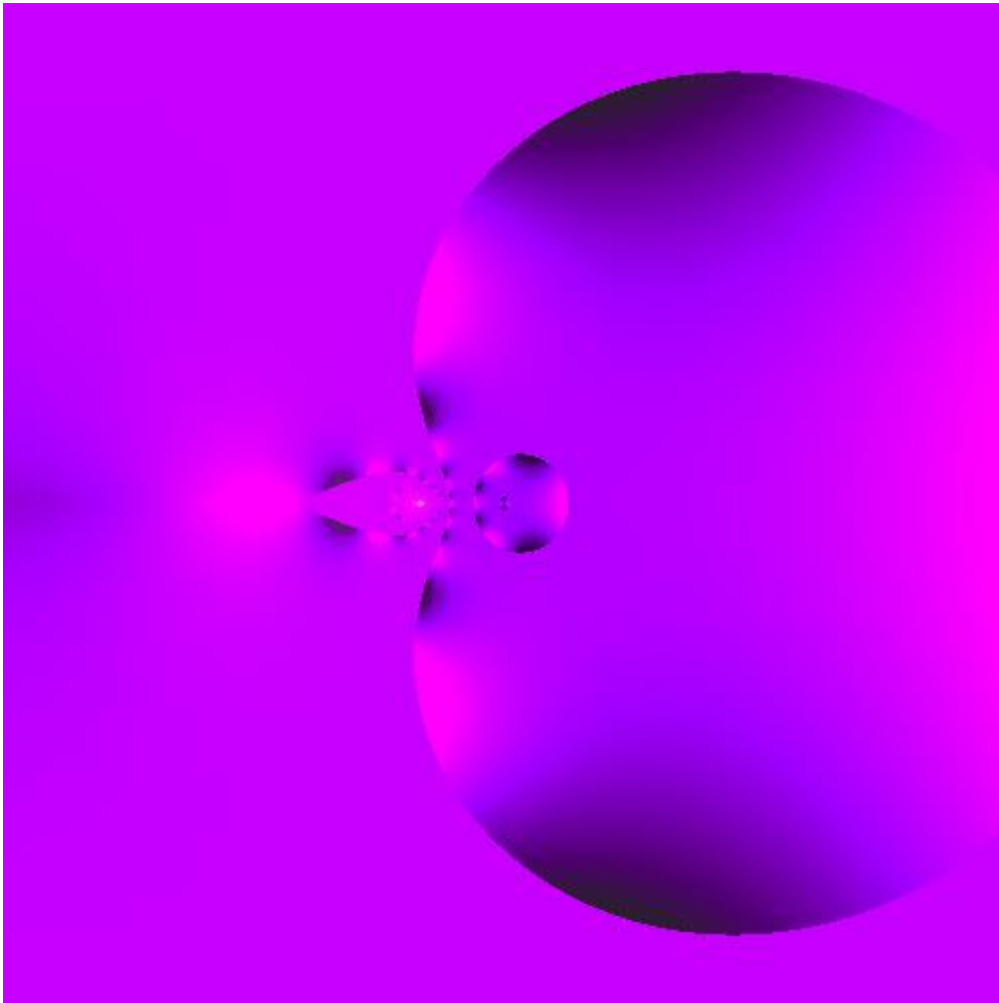


Figure 74.

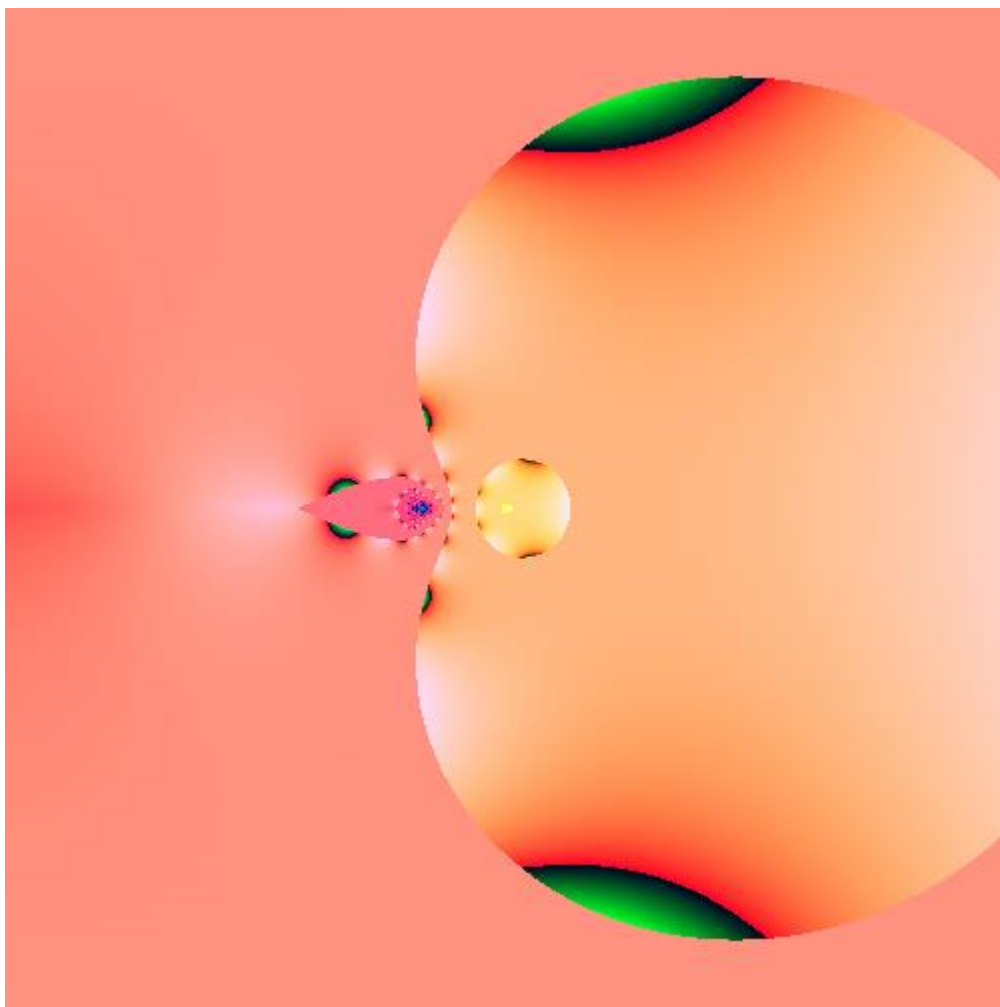


Figure 75.

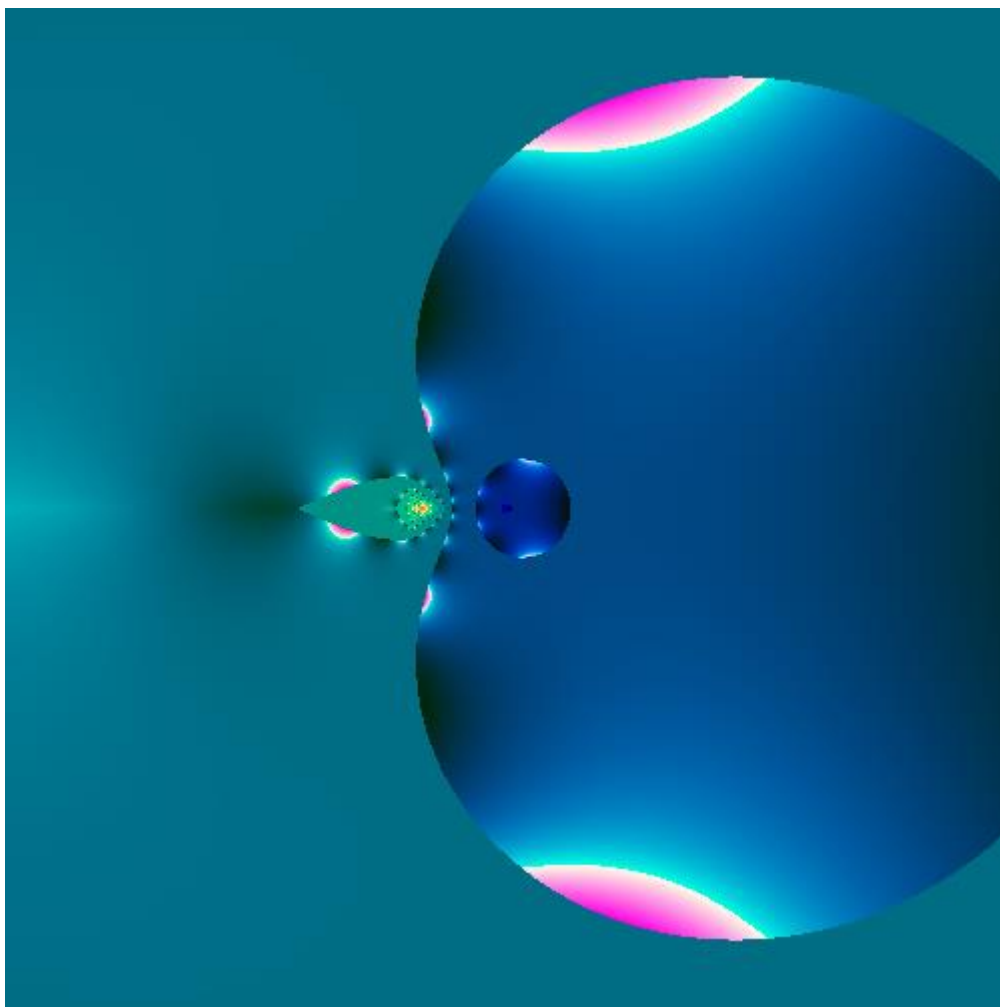


Figure 76.

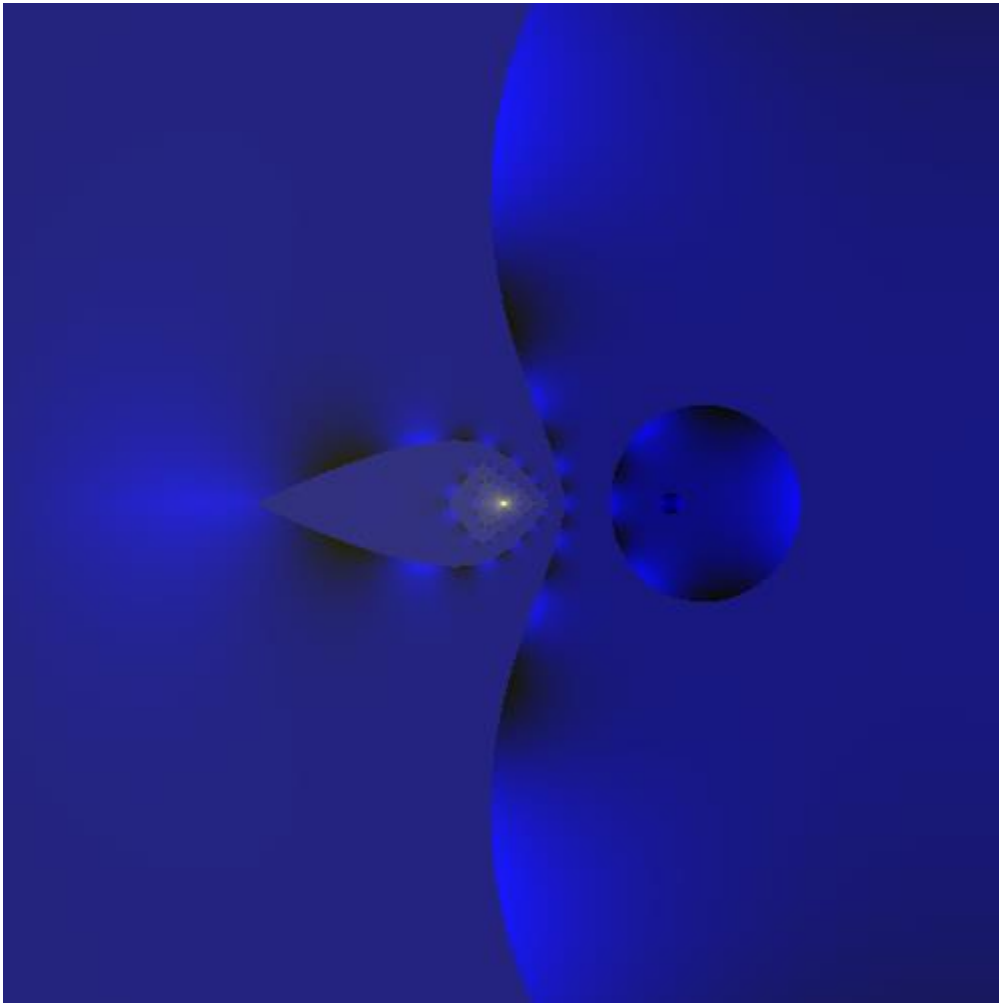


Figure 77.

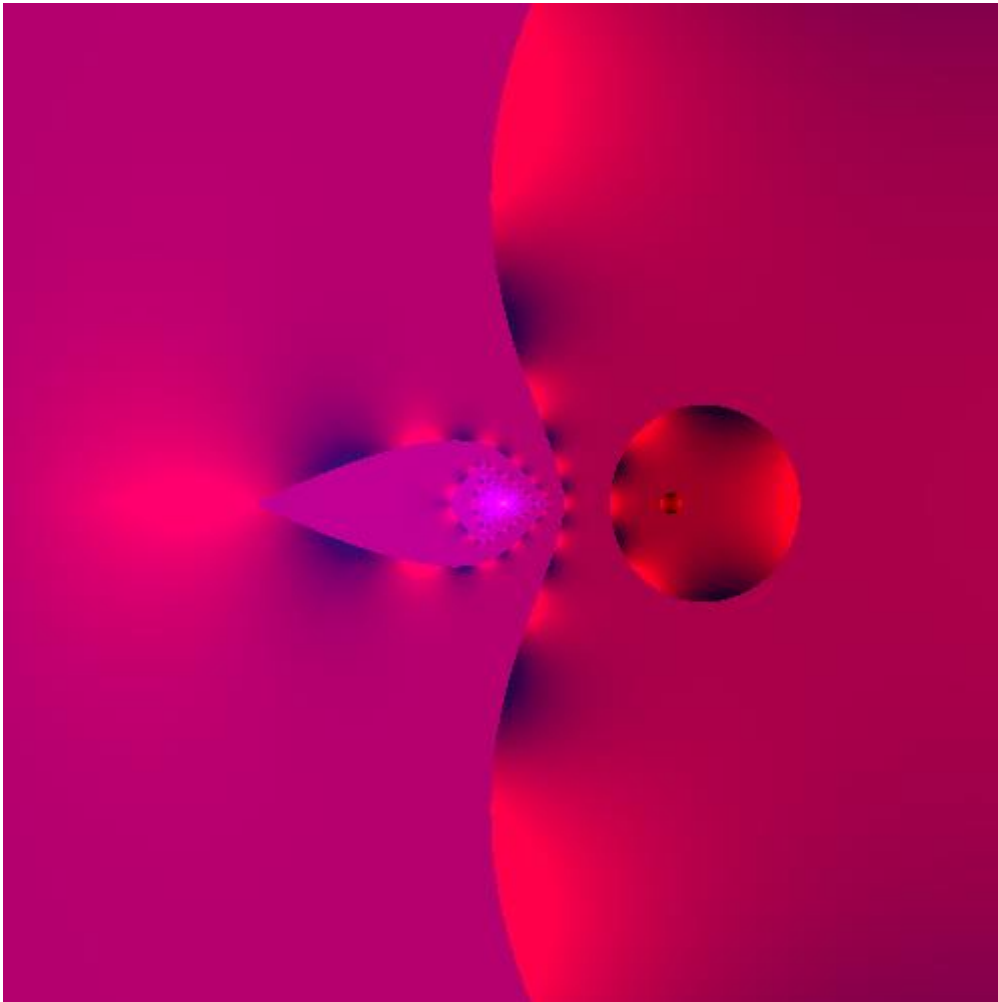


Figure 78.

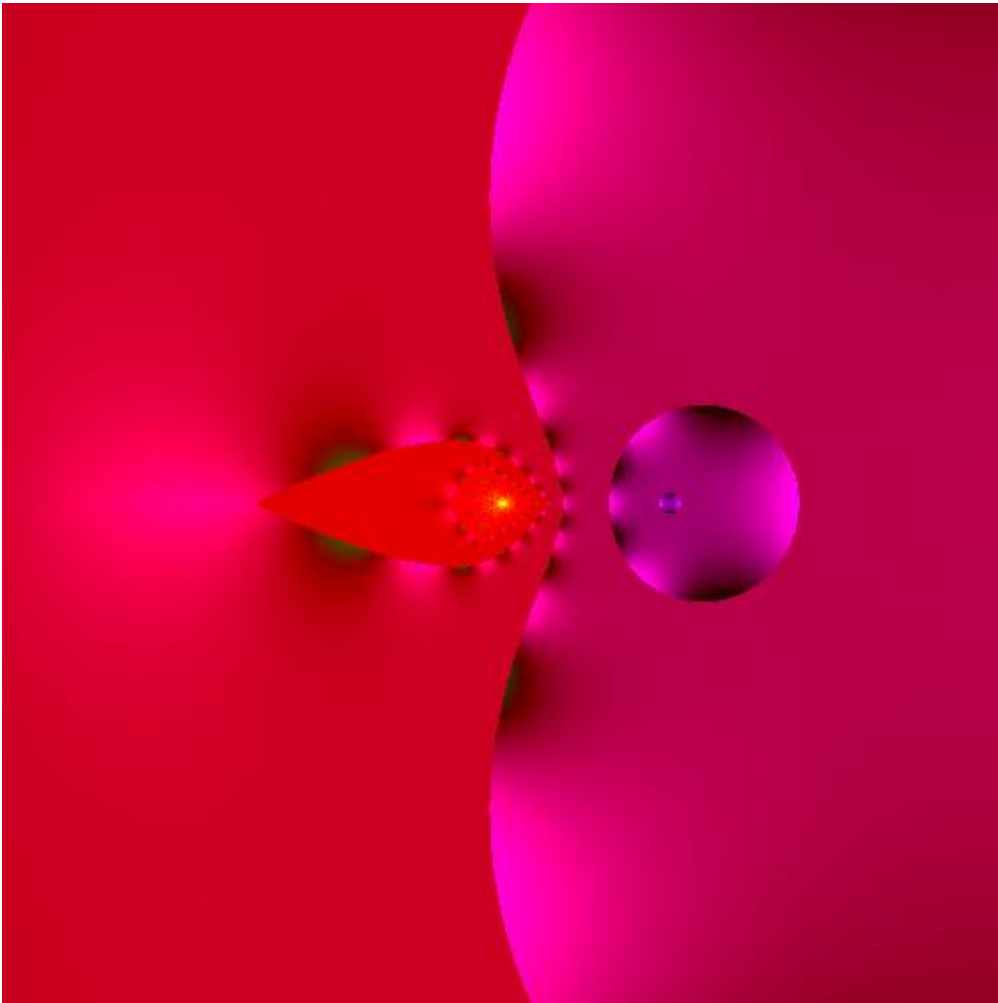


Figure 79.

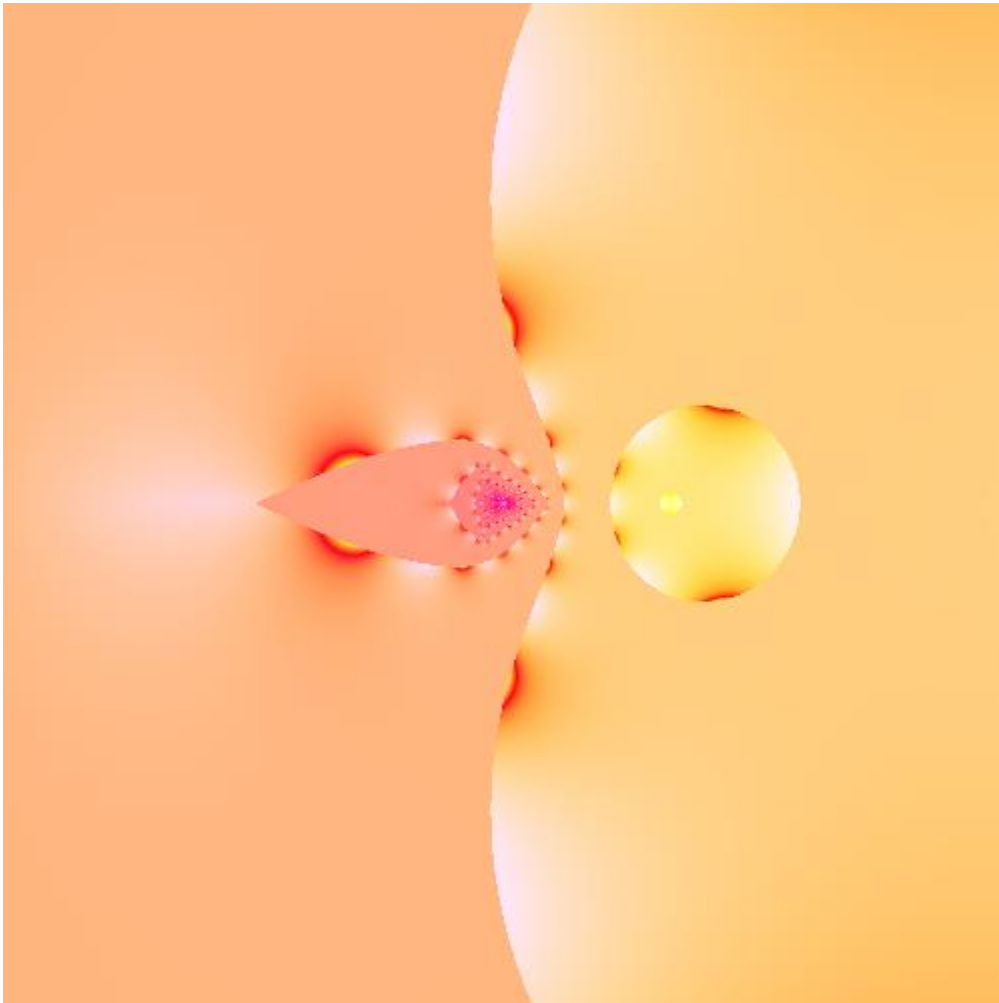


Figure 80.

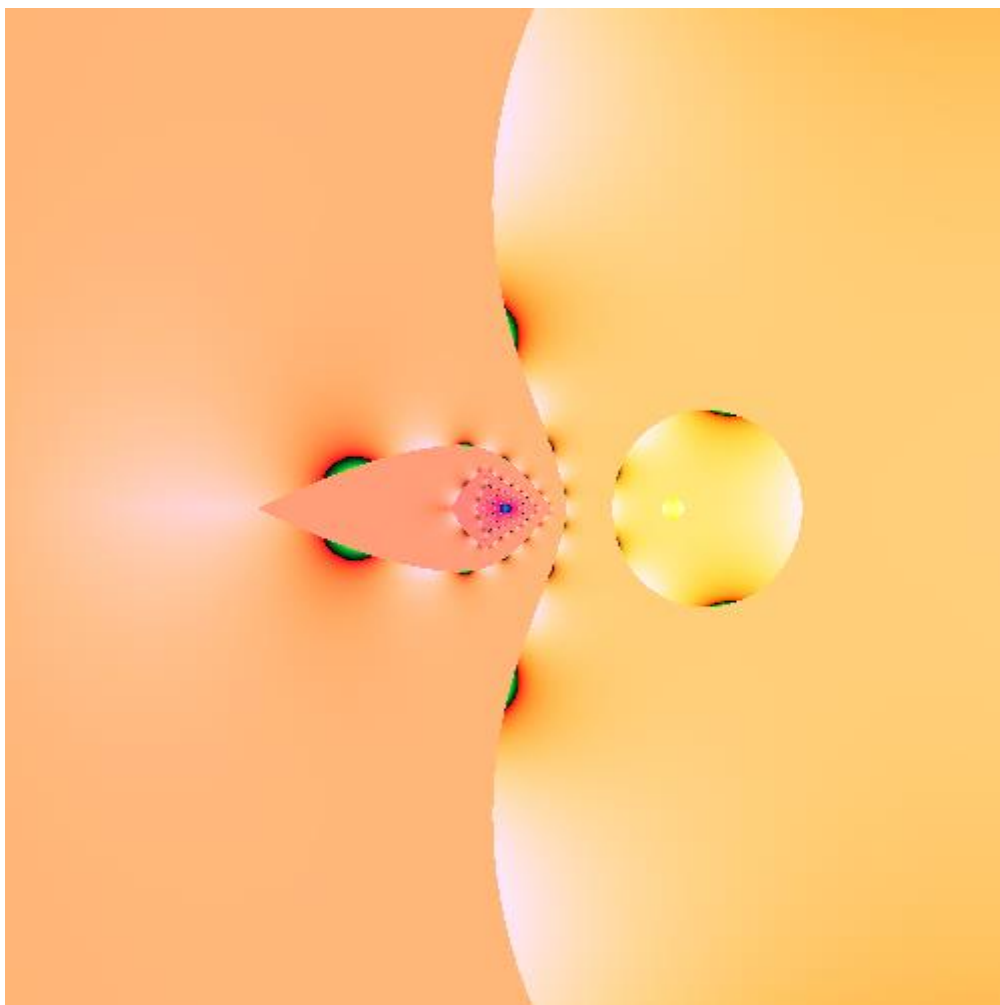


Figure 81.

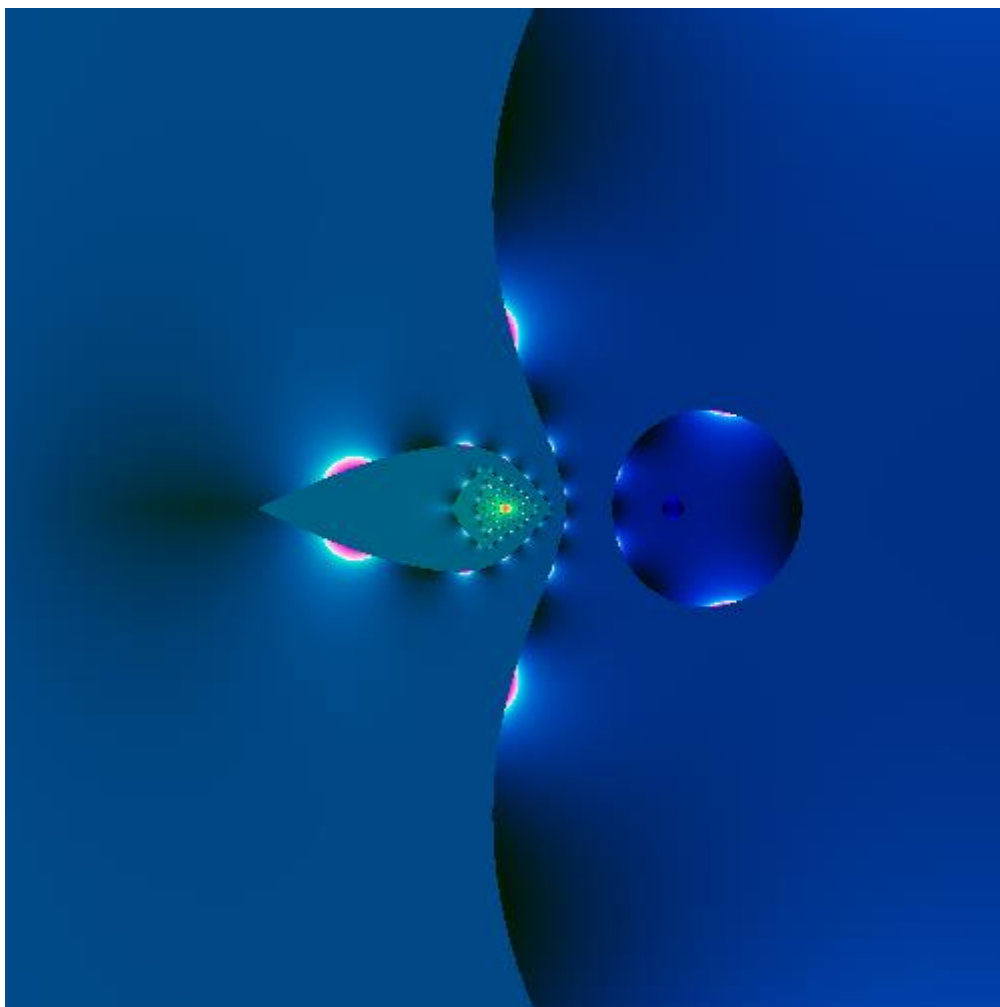


Figure 82.

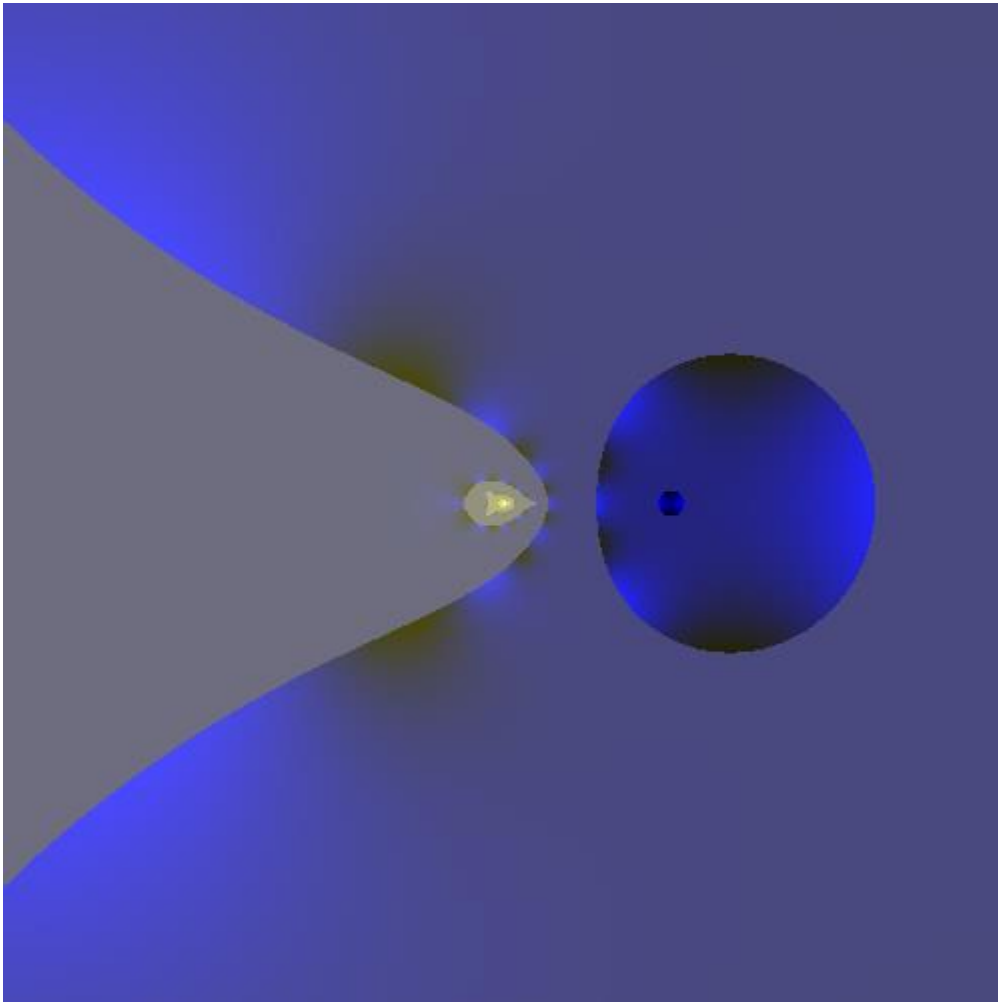


Figure 83.

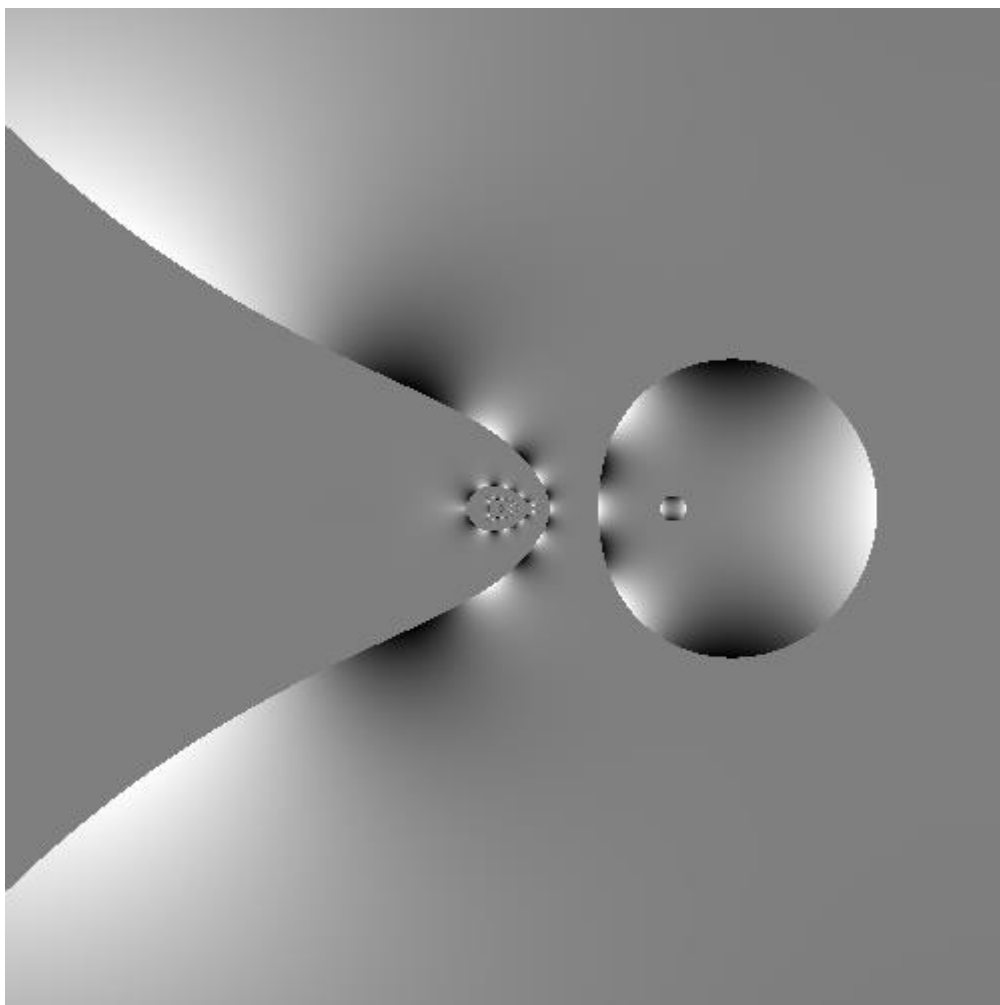


Figure 84.

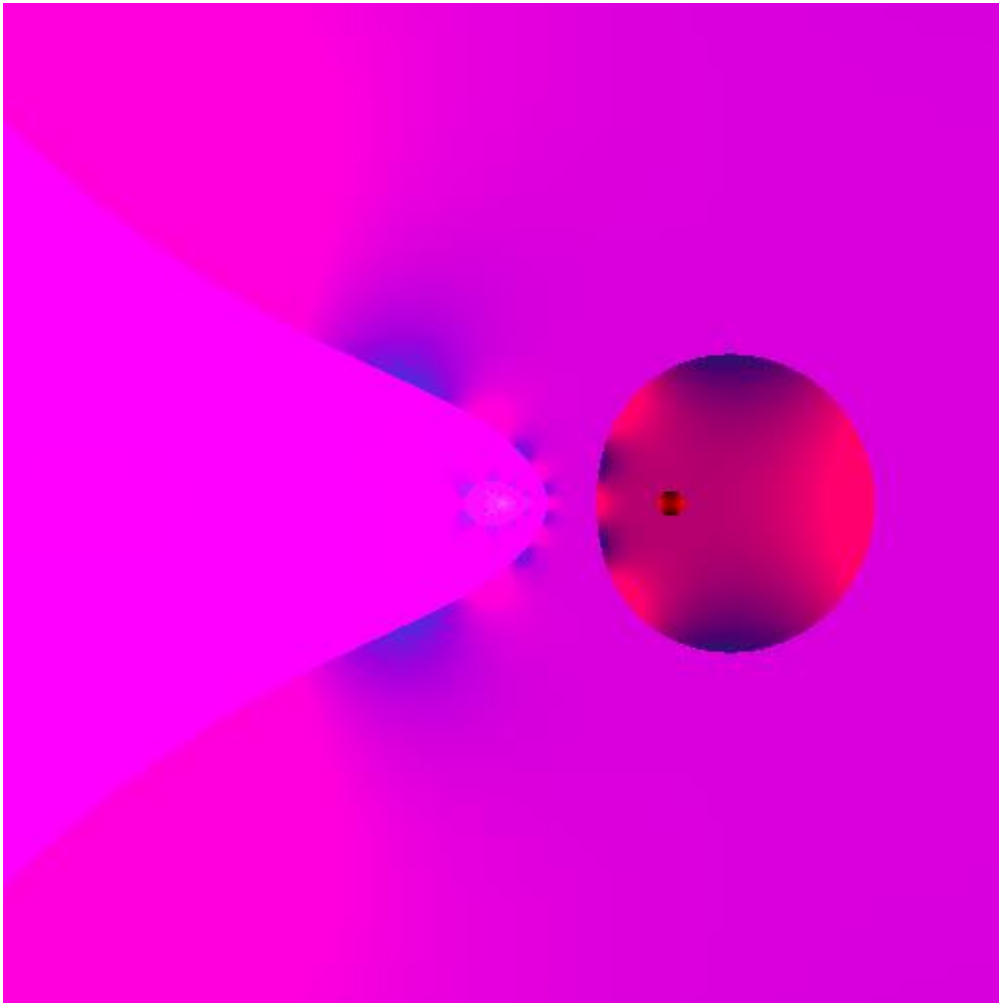


Figure 85.

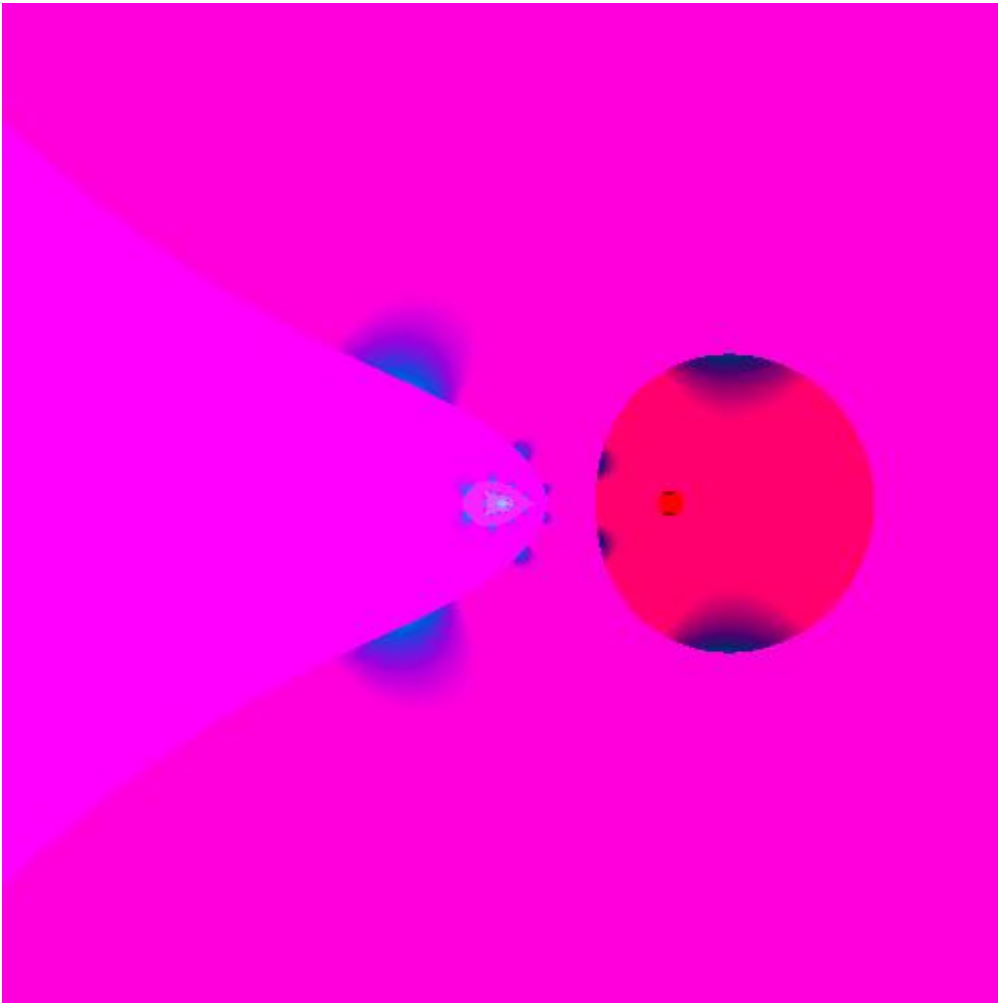


Figure 86.

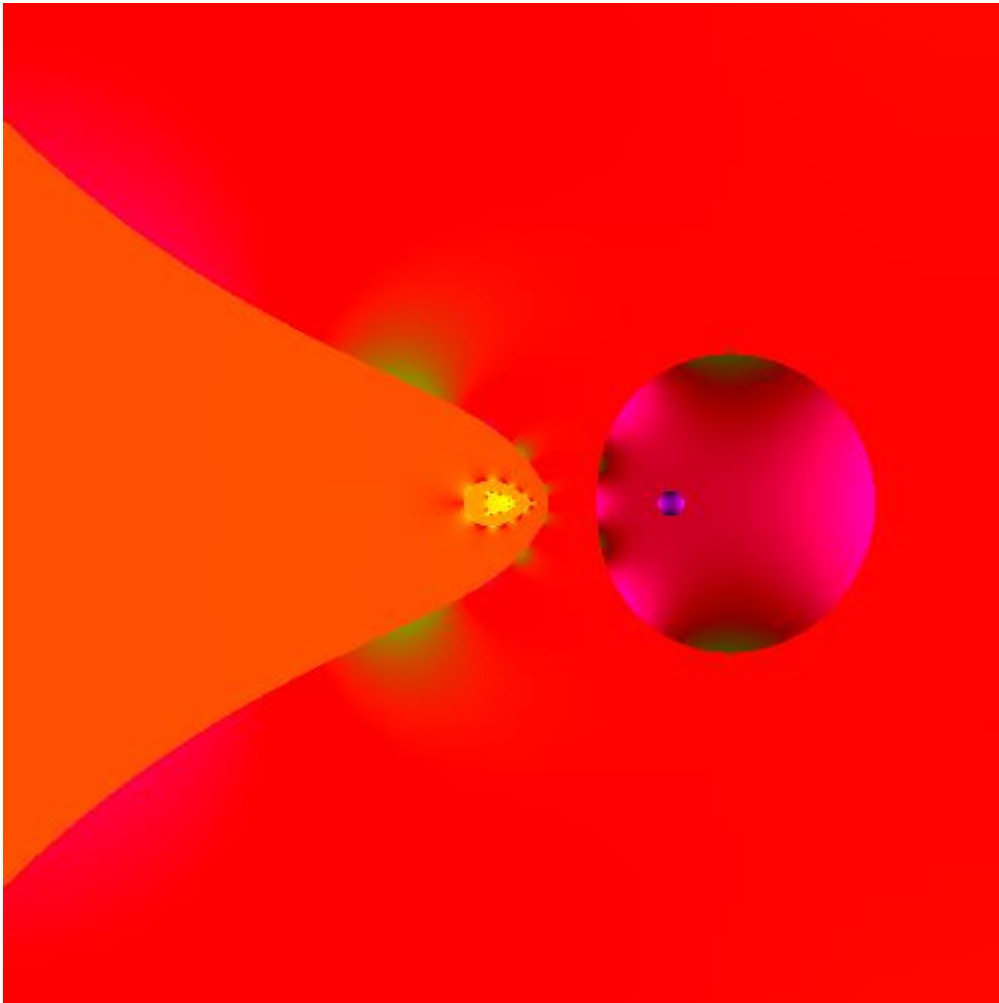


Figure 87.

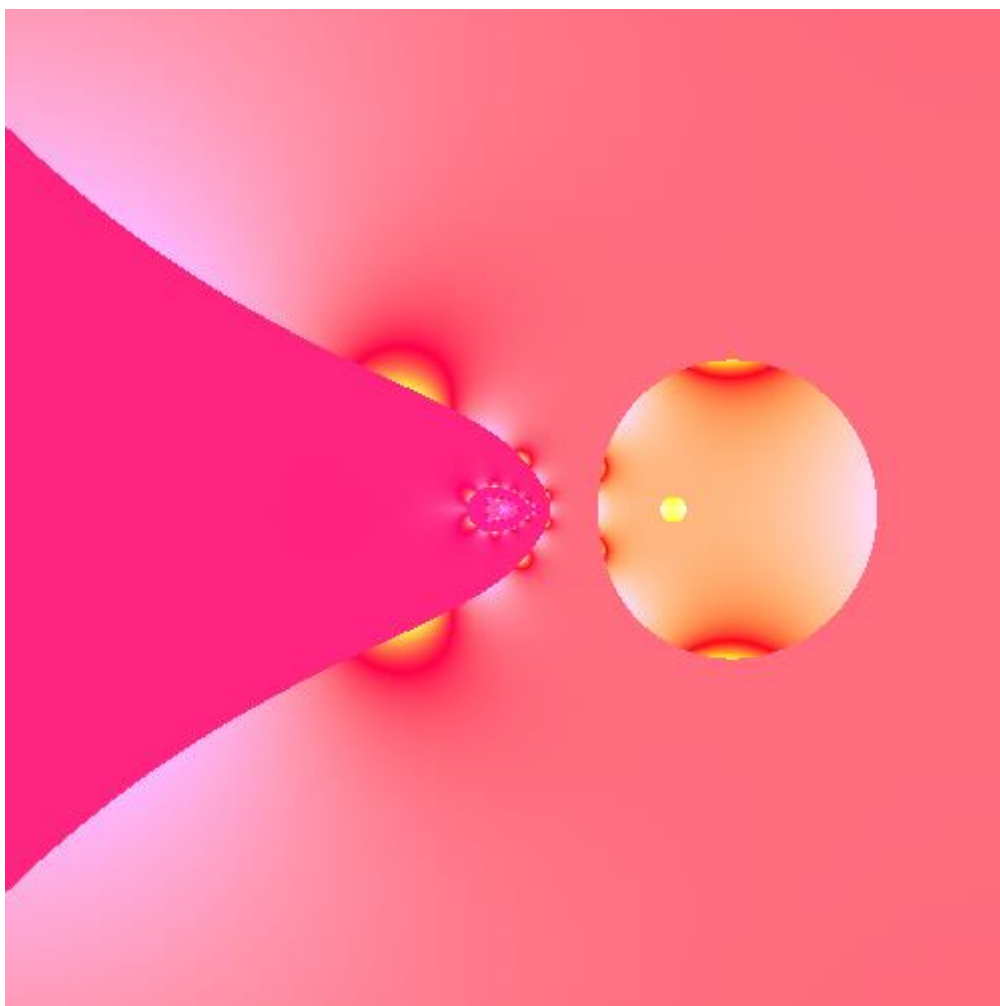


Figure 88.

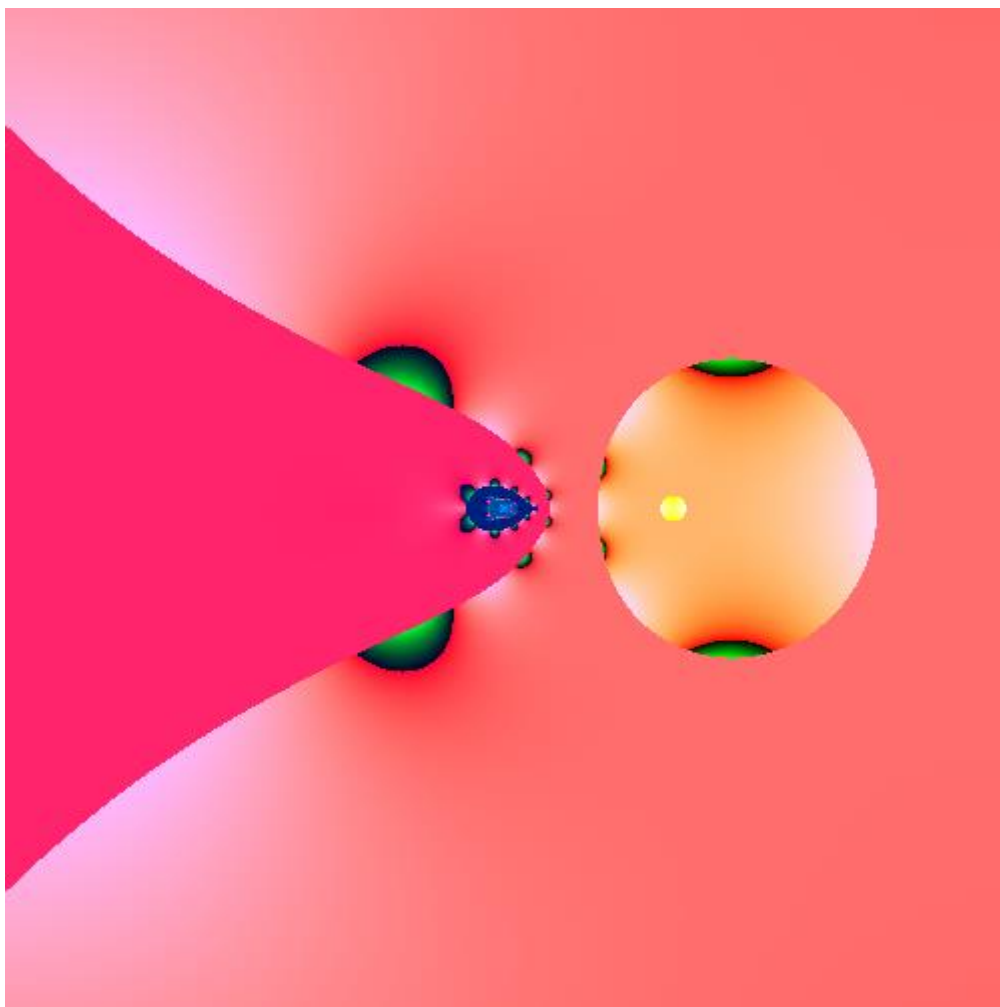


Figure 89.

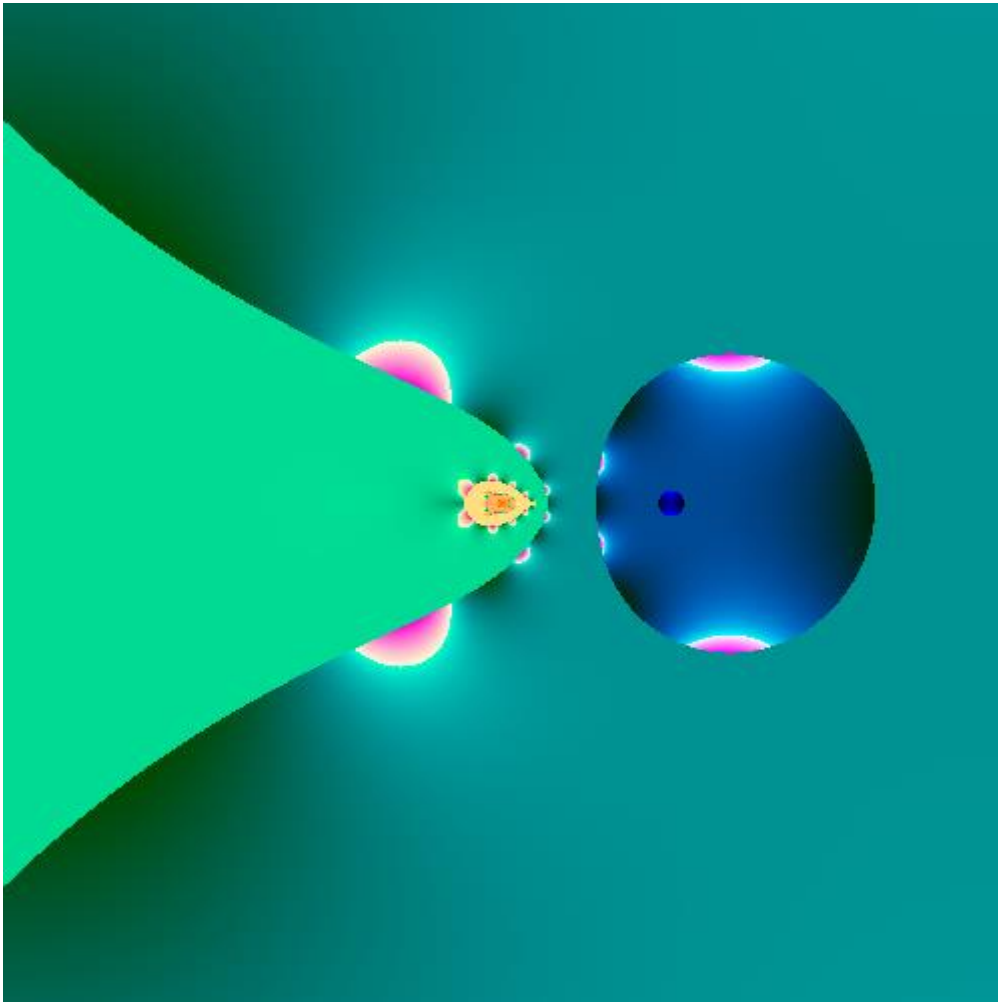


Figure 90.

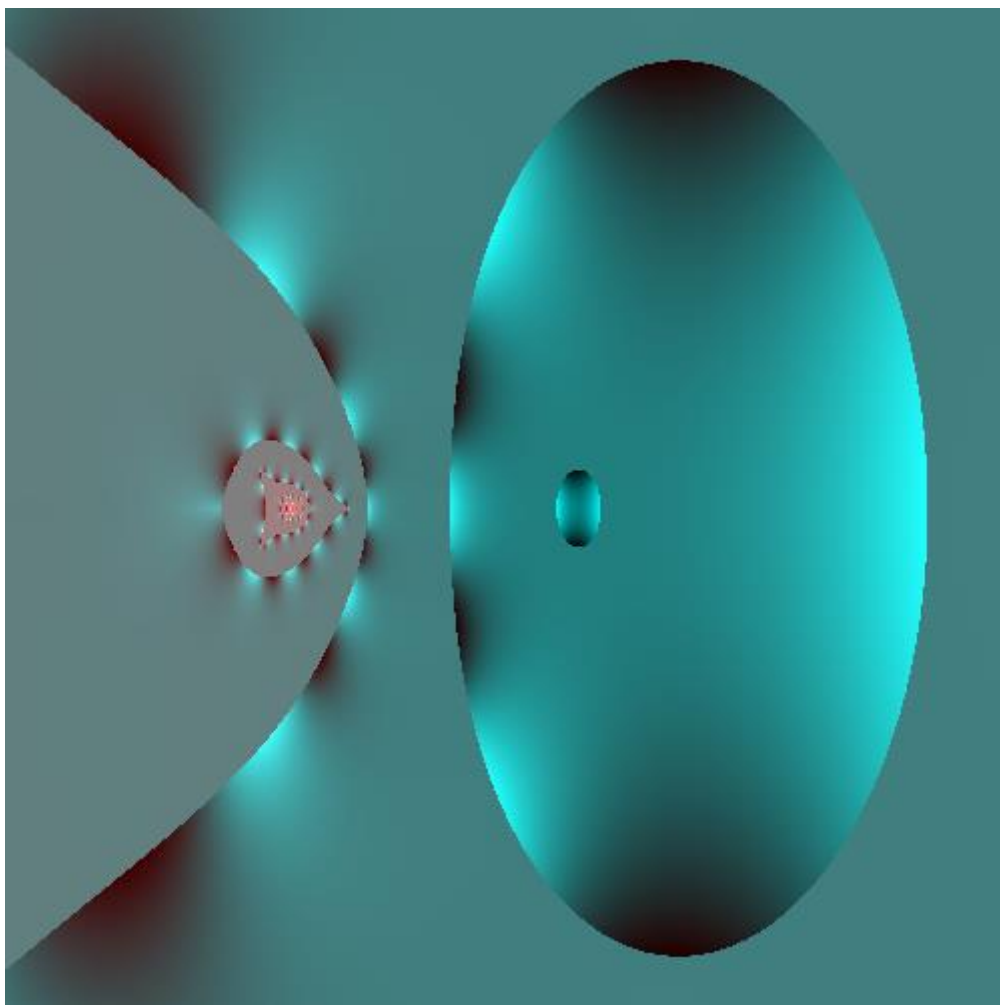


Figure 91.

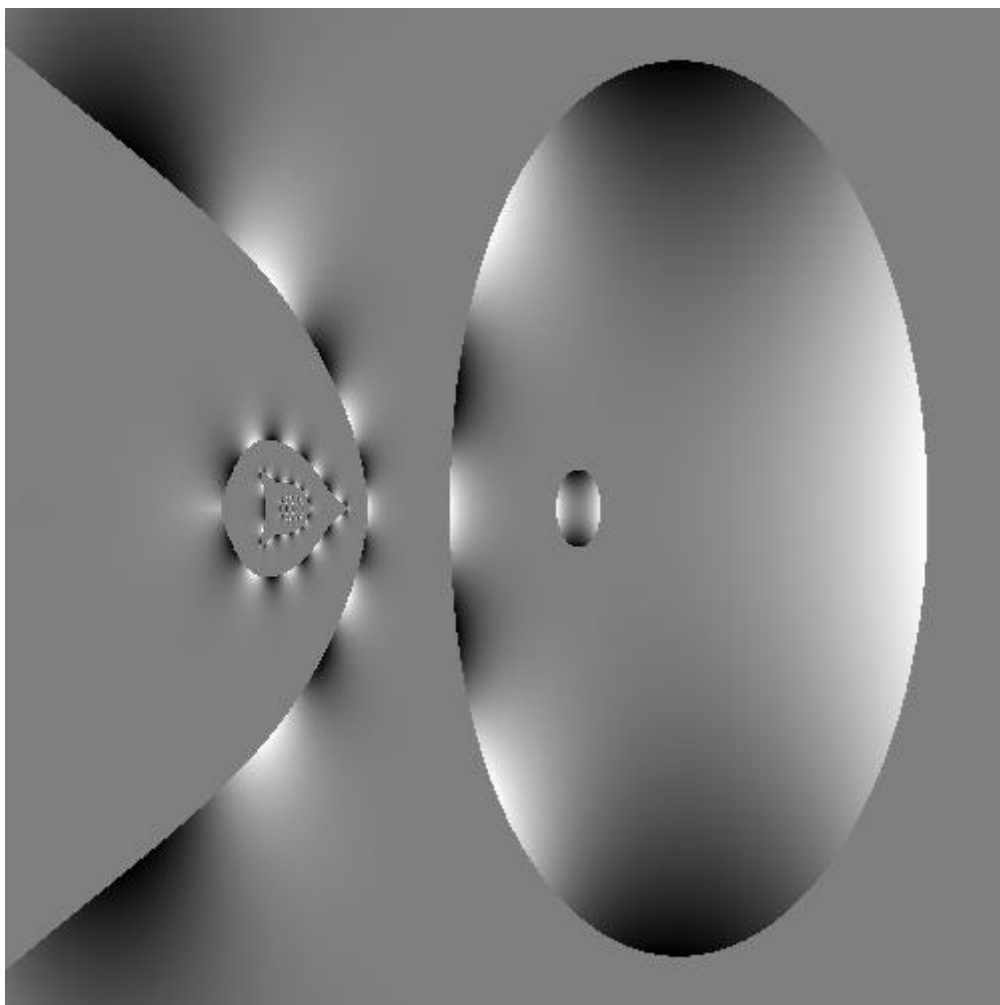


Figure 92.

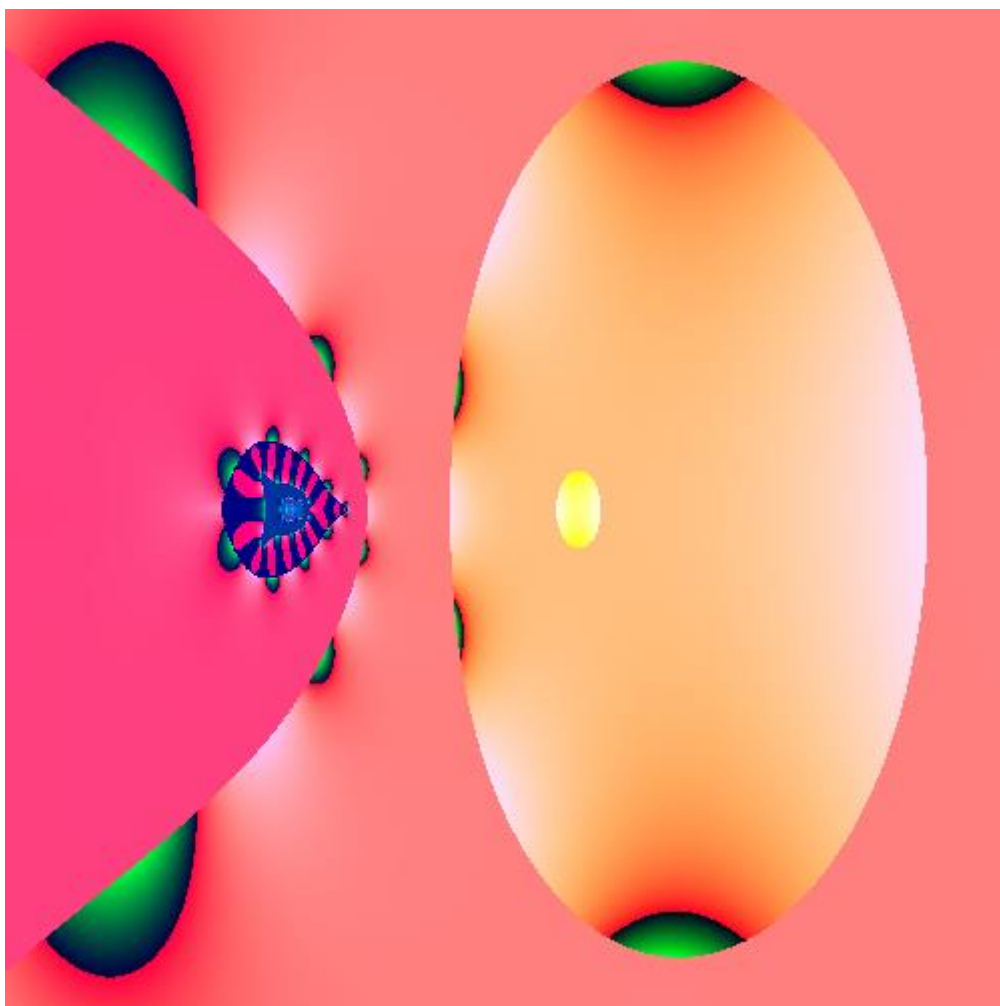


Figure 93.

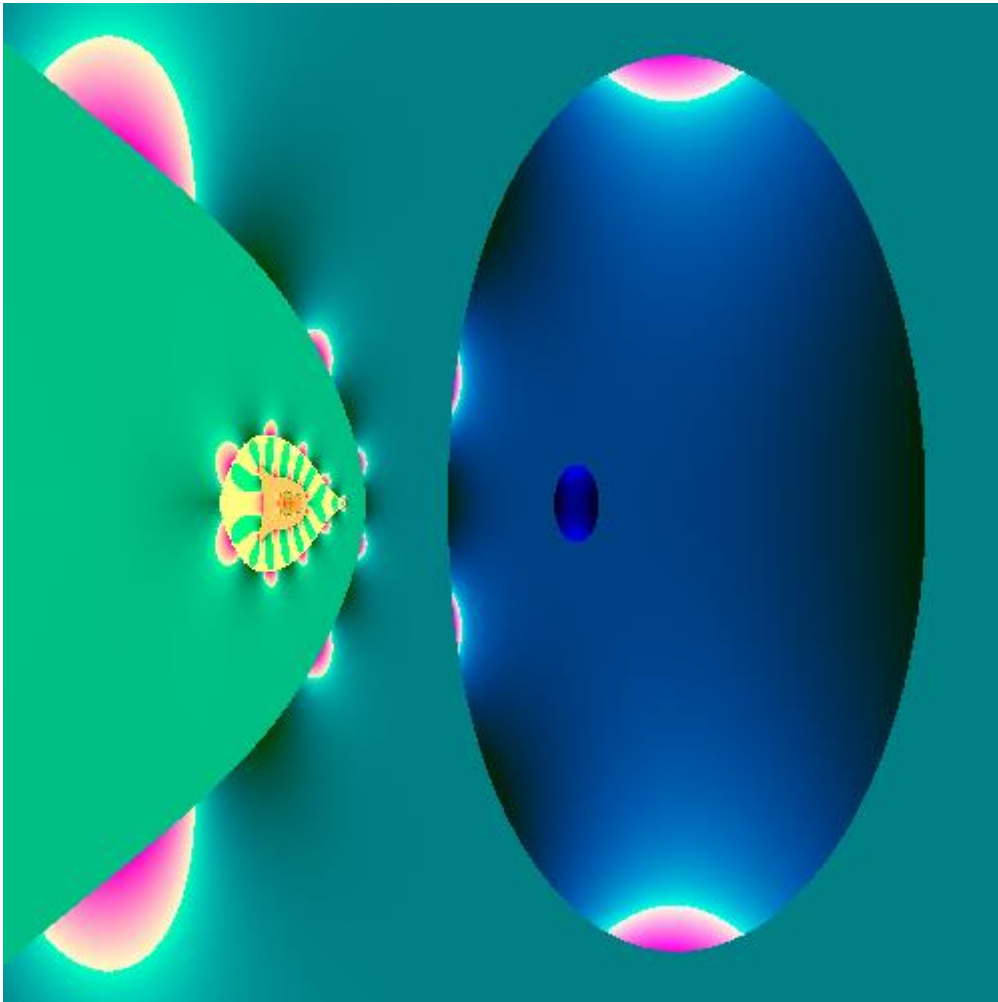


Figure 94.

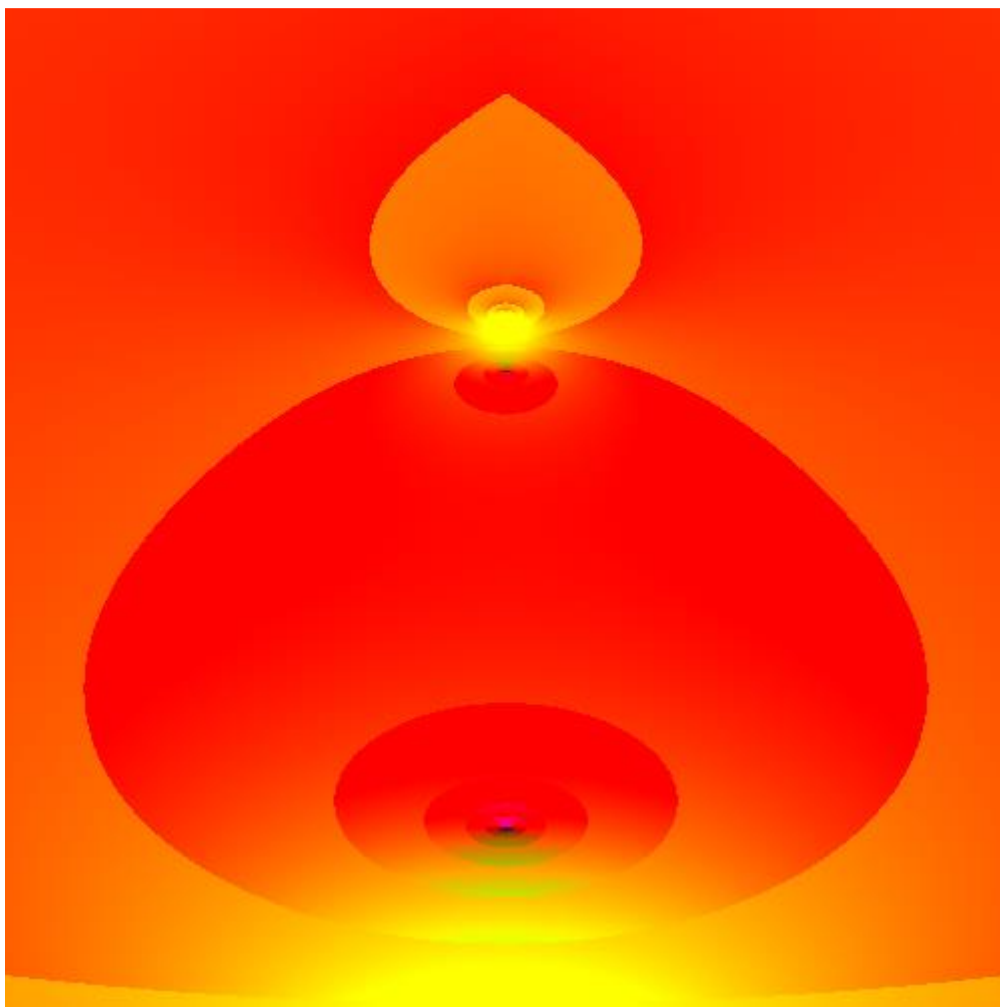


Figure 95.

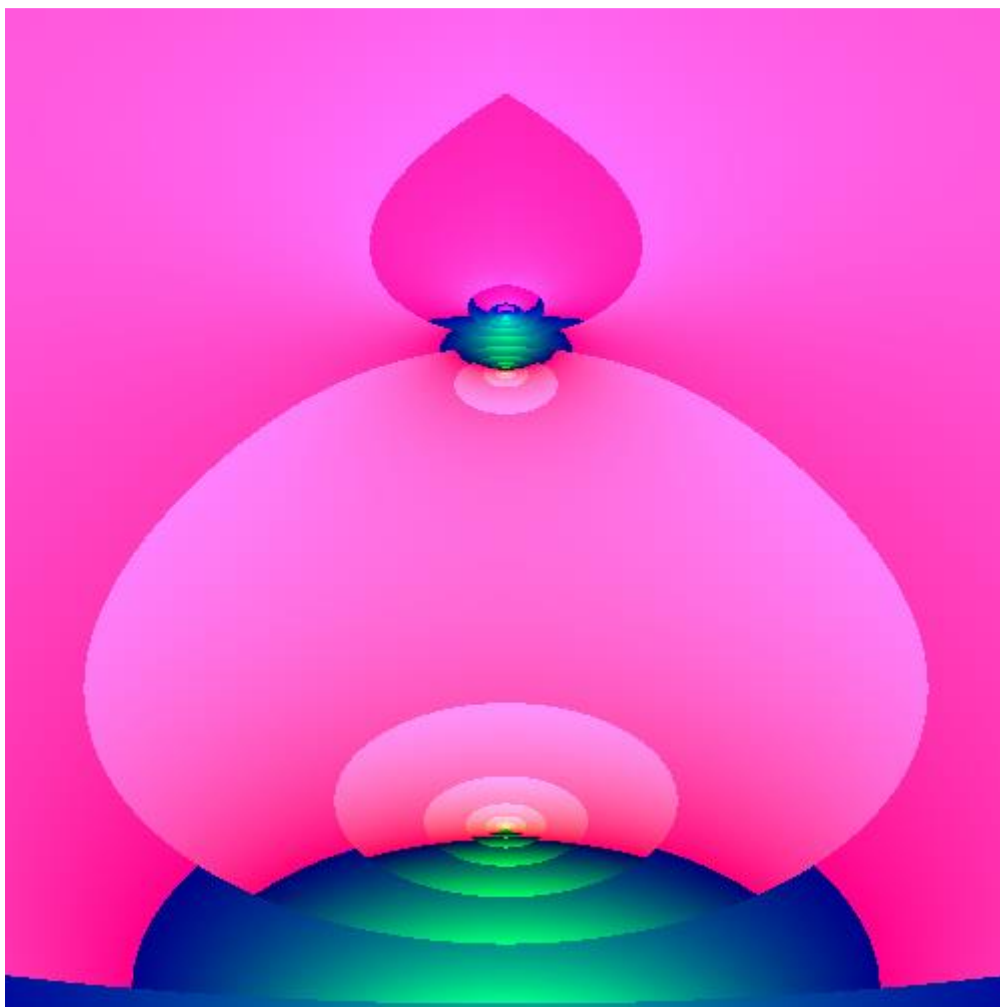


Figure 96.

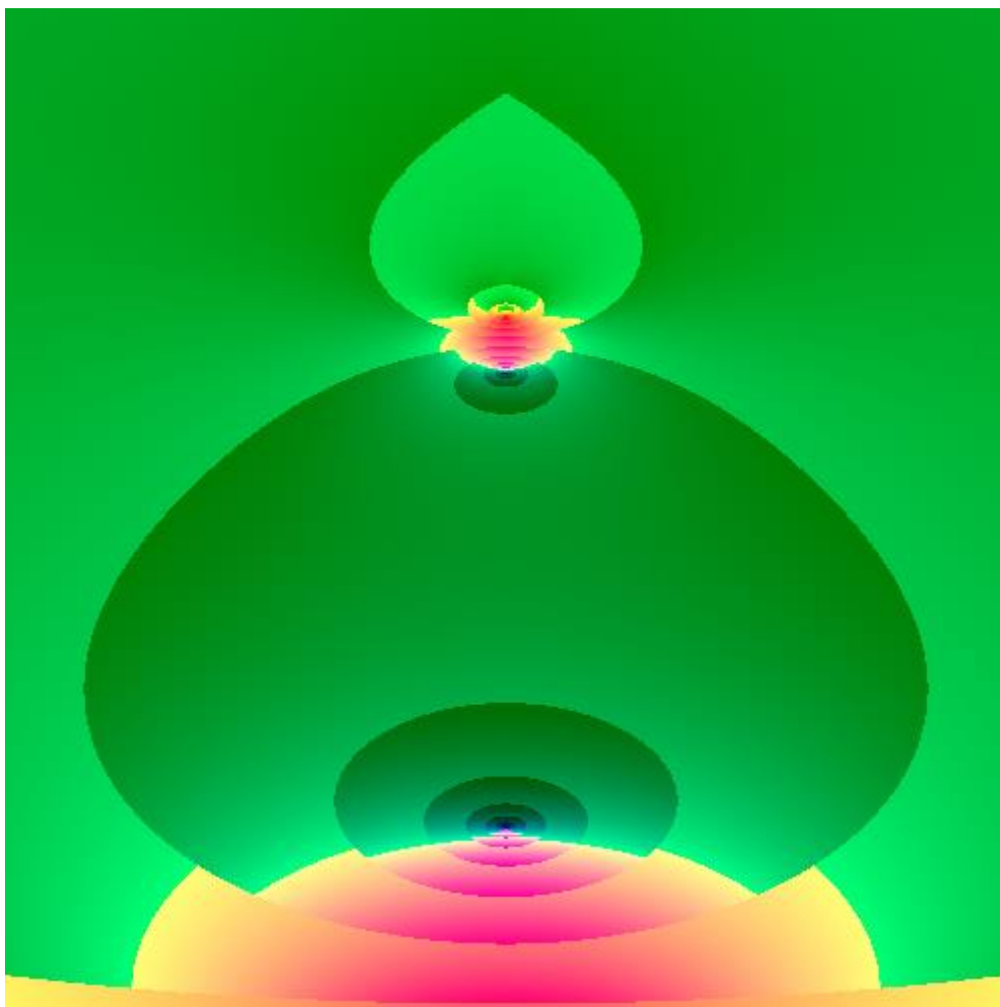


Figure 97.

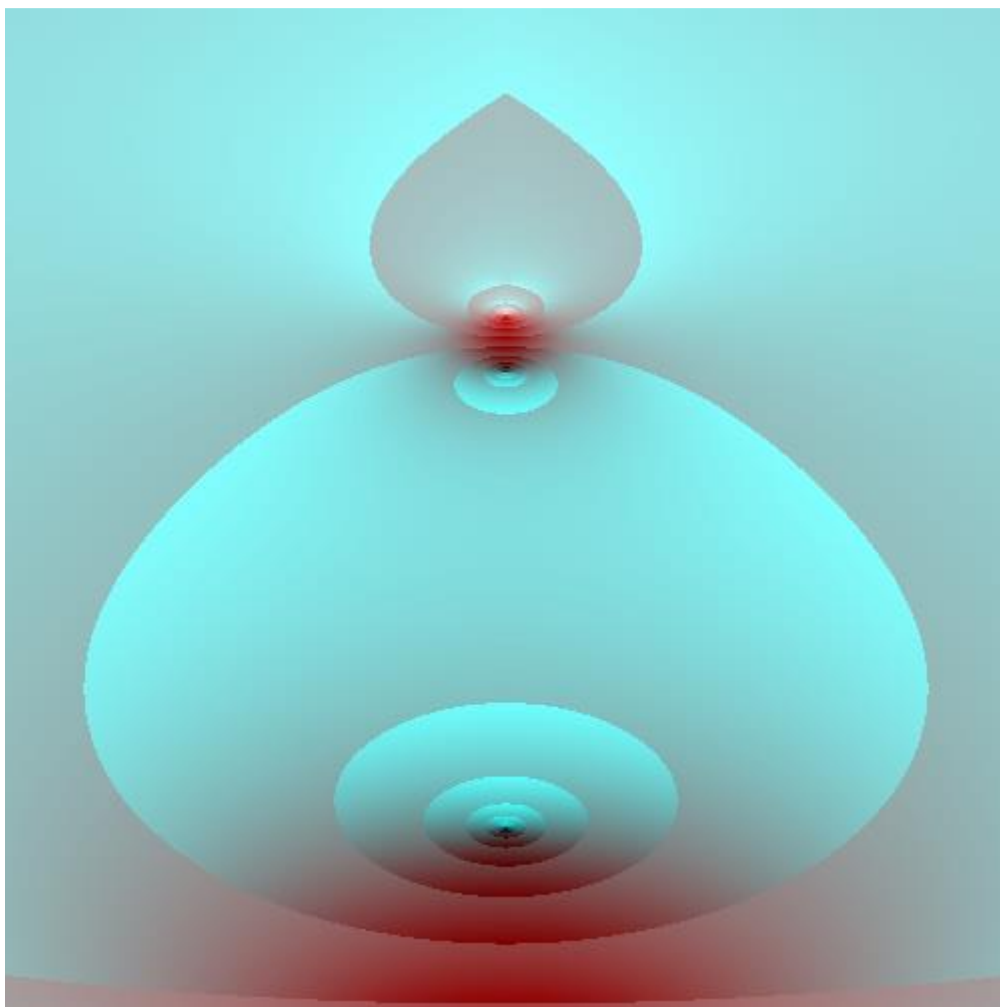


Figure 98.

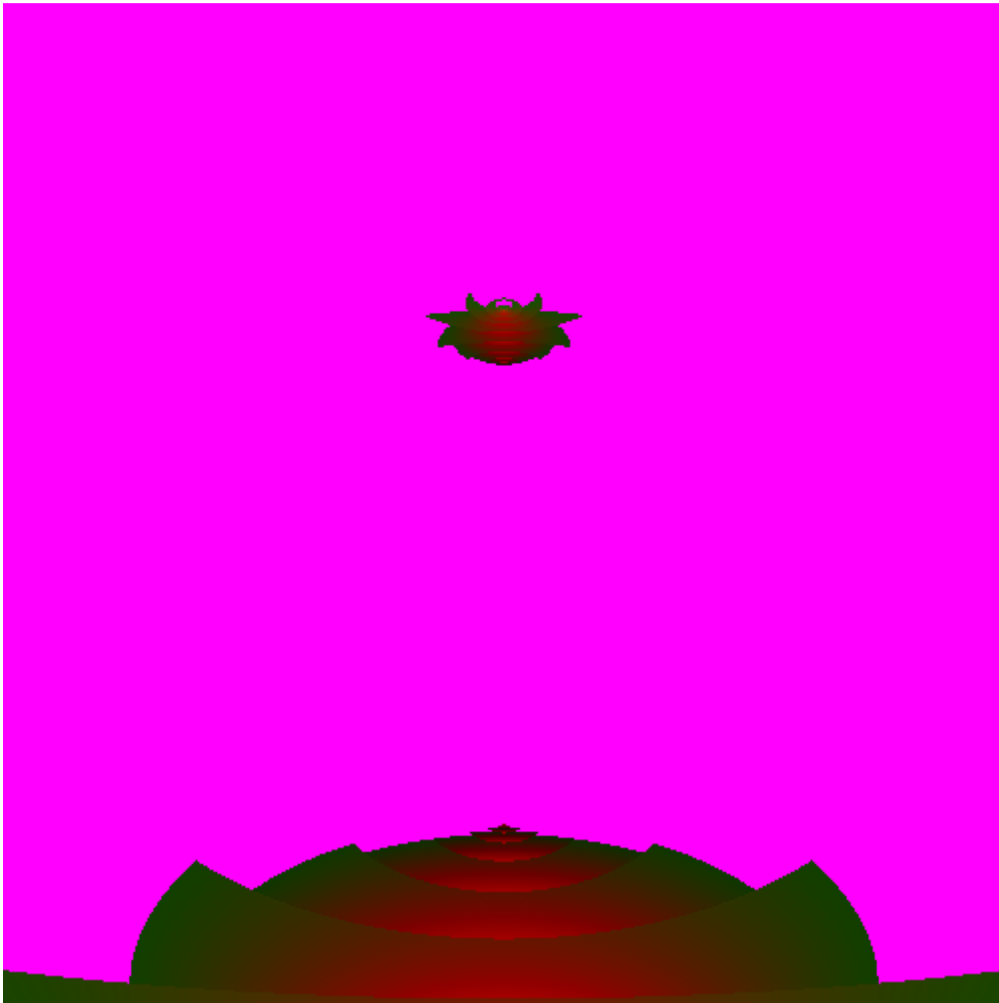


Figure 99.

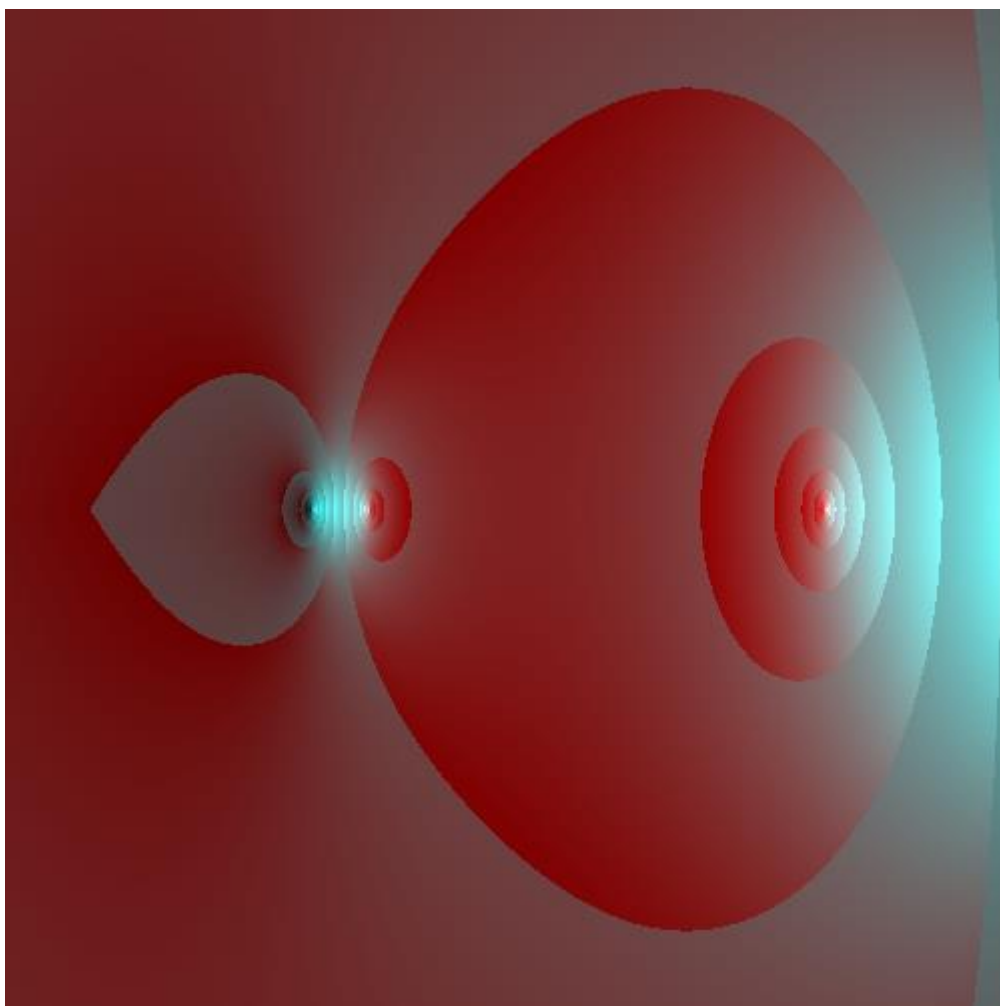


Figure 100.

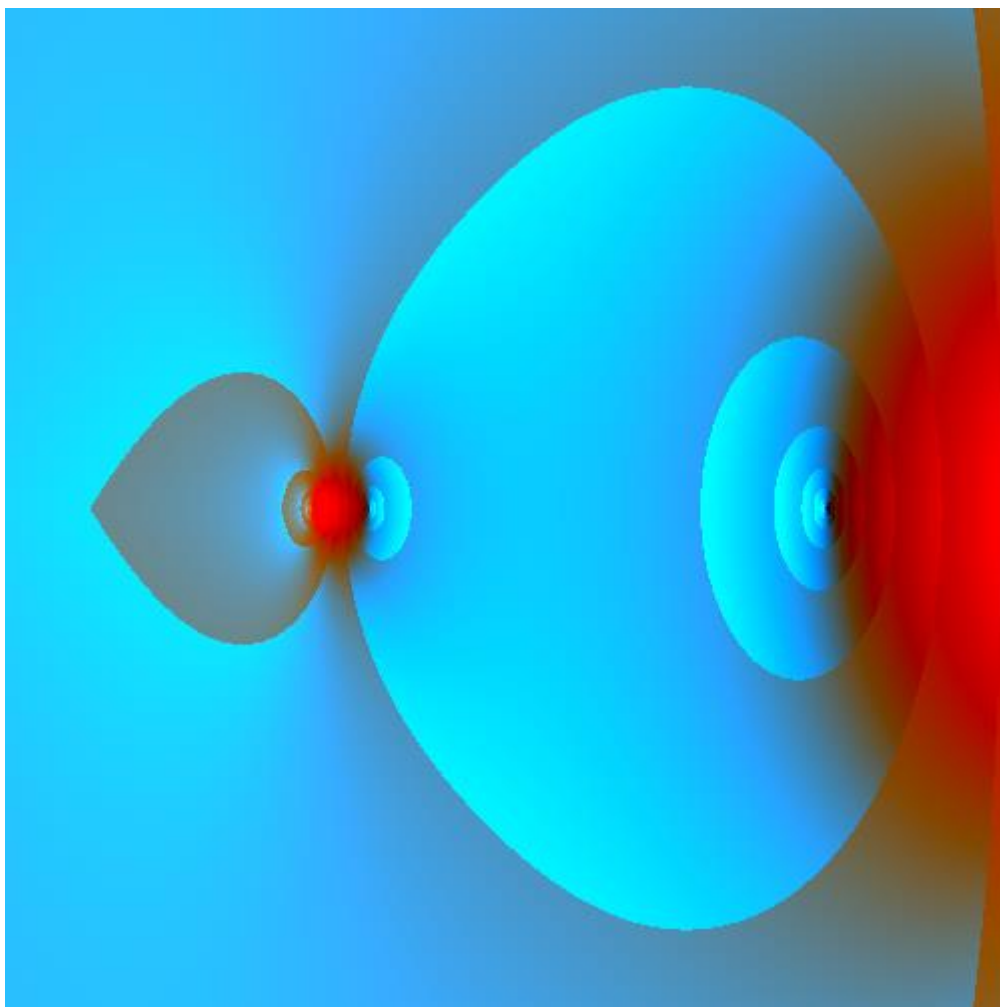


Figure 101.

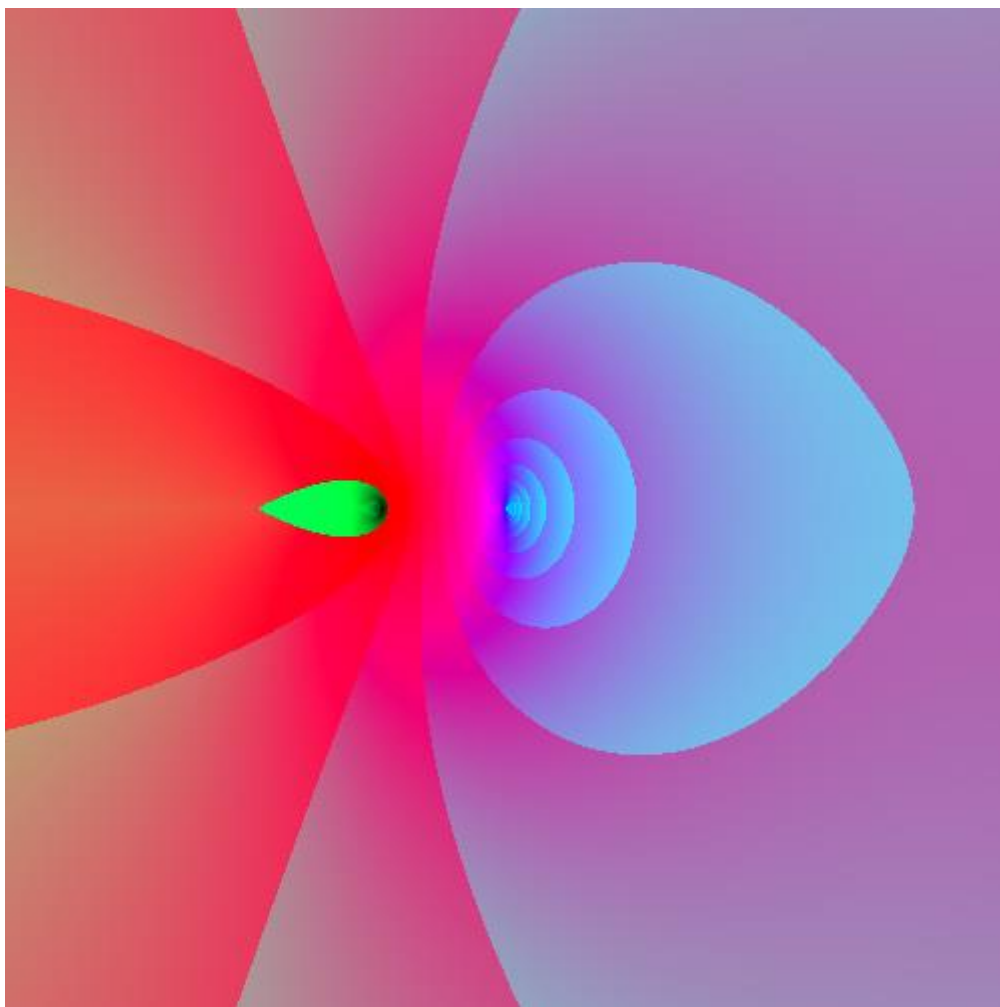


Figure 102.

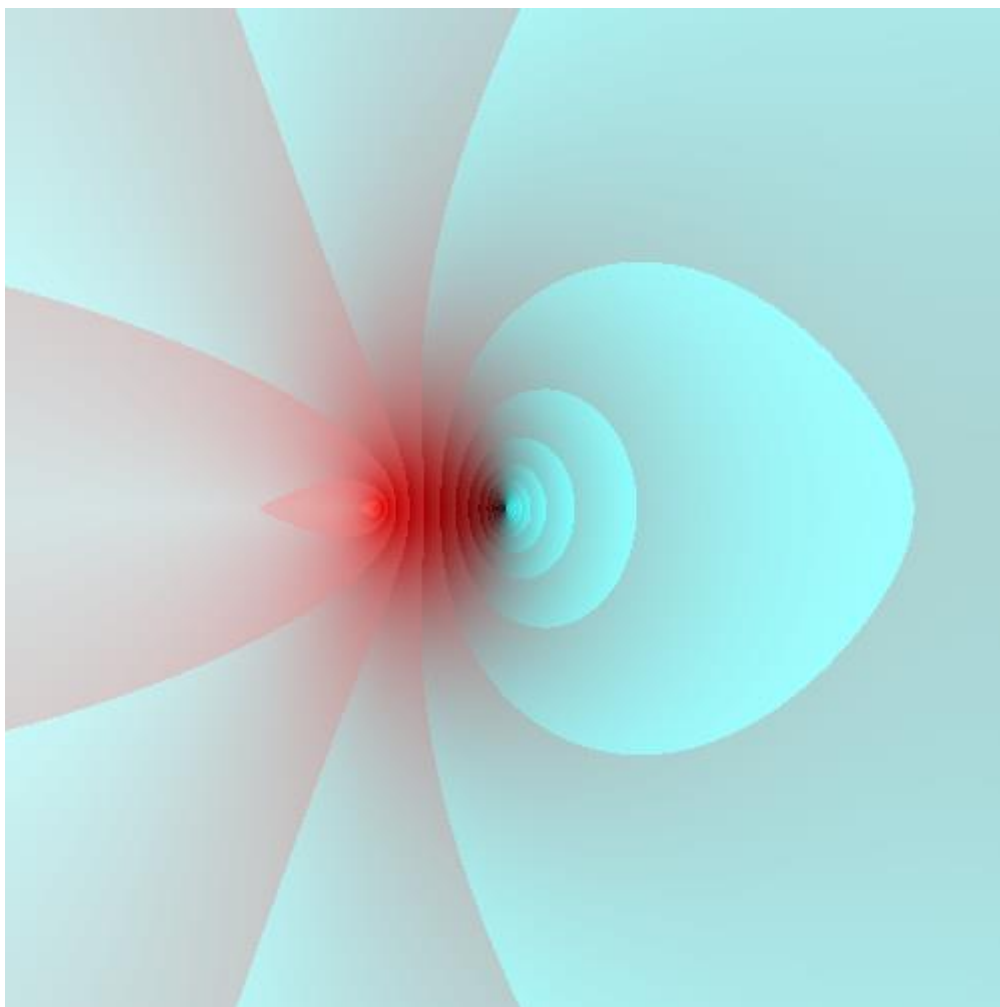


Figure 103.

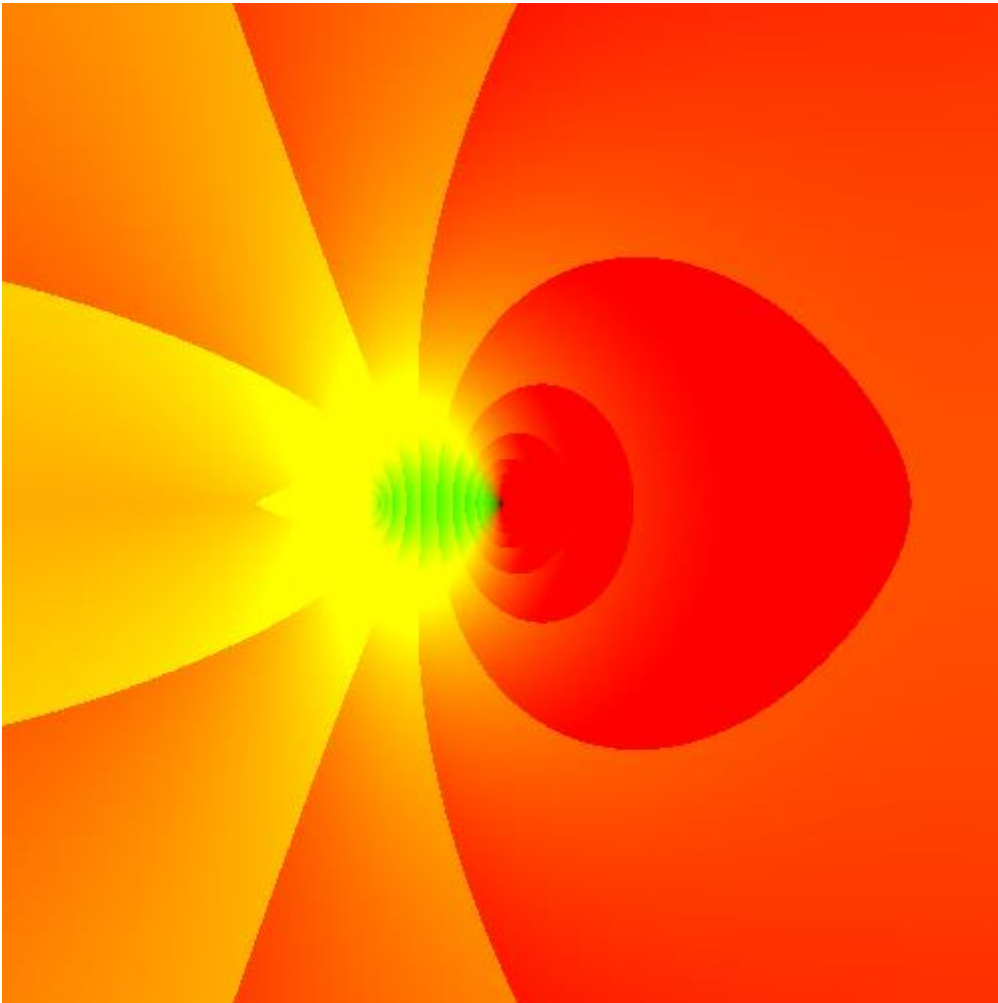


Figure 104.

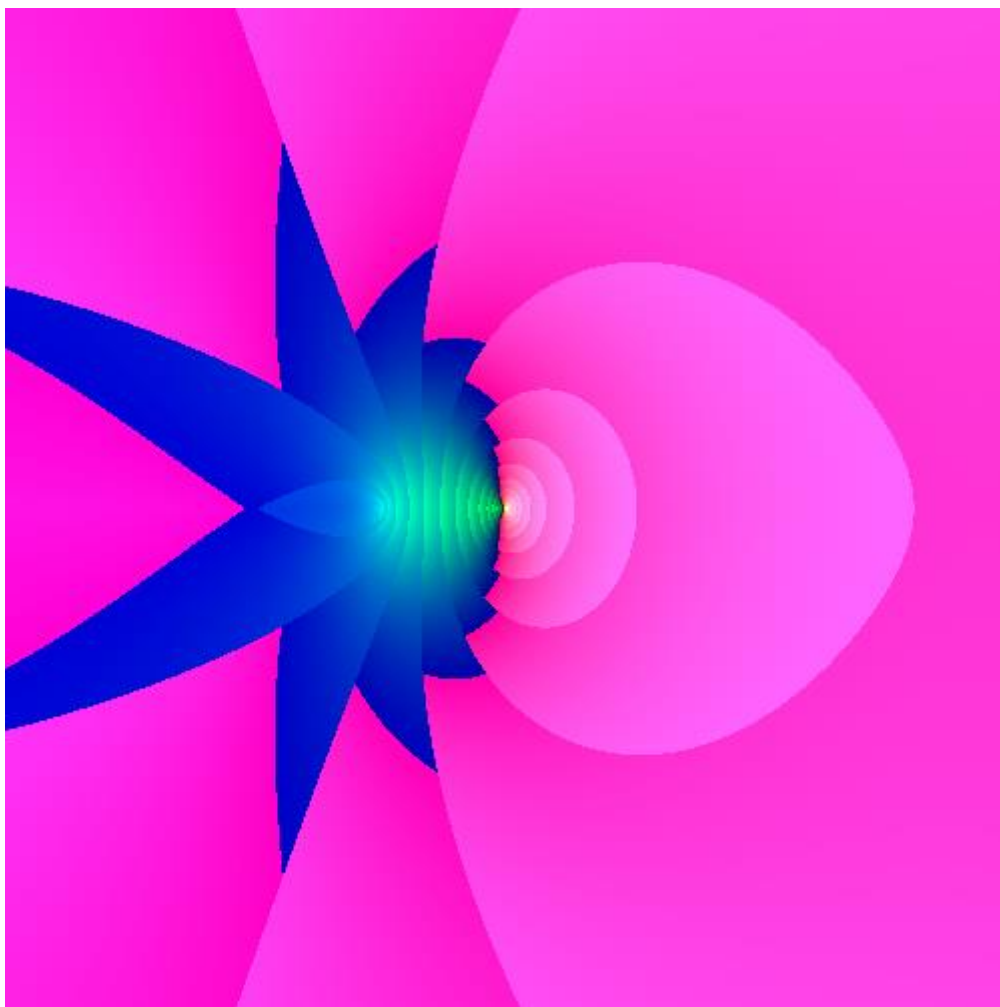


Figure 105.

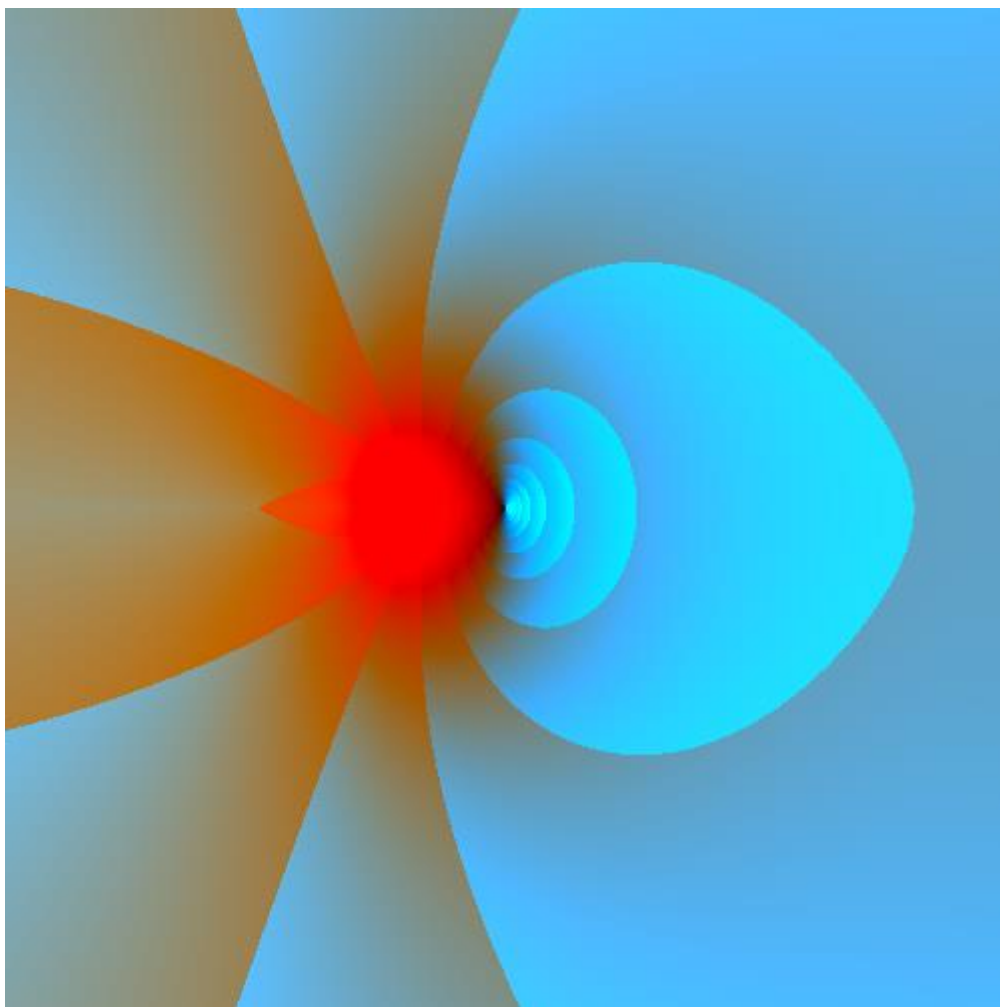


Figure 106.

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. Devaney, R.L.: Complex Dynamical Systems: The Mathematics Behind the Mandelbrot and Julia Sets. Providence, RI: Amer. Math. Soc., 1994.
5. Mandelbrot, B: Fractals: Form, Chance, & Dimension. San Francisco, CA: W.H. Freeman, 1977.
6. Mandelbrot, B.: The Fractal Geometry of Nature. New York: W.H. Freeman, 1983.
7. Milnor, J.: Dynamics in One Complex Variable: Introductory Lectures, Vieweg, 1999.
8. Peitgen, H.-O., Jurgens, H. and Saupe, D.: Chaos and Fractals: New Frontiers of Science. New York: Springer-Verlag, 1992.
9. Pickover, C.A.: Fractal Horizons: The Future Use of Fractals. New York: St. Martin's Press, 1996.