Spherical Aberrations

by C.G. Masi

Artist, scientist, engineer, journalist, and author, C.G. Masi has advanced degrees in astrophysics and business administration, with hundreds of published articles in magazines as diverse as *American Iron* and *Review of Scientific Instruments*, six completed novels and artworks in two and three dimensions spanning media from carved wood to acrylic-on-canvas.

Largely self taught as an artist, Masi began sketching as soon as he could hold a pencil. He progressed from crayon to watercolors, oils, and acrylics. At the same time working with clay, carved wood and metal, plastics and twisted wire. His current work is heavily concentrated on airbrushing and experimenting with latex-based paints.

Masi's paintings use *trompe d'loiel* techniques to render visual fantasies. His work can be thought of as an outgrowth of surrealism in that he uses realistic rendering to communicate ideas and concepts visually. Subjects are chosen for emotional impact and visual appeal. He considers anything that can be seen or imagined as fair game.

Artist Statement

I work at the interface between perception and reality.

Actually, all artists work at the interface between perception and reality. The difference, if any, is that I work *explicitly* at the interface between perception and reality. I don't try to kid you into thinking that what you are experiencing is reality in any way, shape or form. Neither is it any kind of more-or-less abstract representation of reality. I'm not creating reality, I'm creating perception.

The artist creates an object – whether it's a book, a painting, a sculpture, a mobile, or a serving of eggs Benedict – that exists in reality. When you experience that object, what you perceive is something entirely different, which exists only in your mind. It does not, and may never have, existed in reality.

That is subjective reality.

Objective reality isn't.

Samaniago

In subjective reality, your mind creates a perception guided by the vision of the artist. The work of art is successful insofar as the object the artist created leads you to the perception he or she intended.

Usually, what I intend is to guide you to a pleasant perceptual experience.

Have a pleasant perceptual experience!

From an evolutionary standpoint, rounded shapes have always been one of the most important forms for visual systems to perceive. From woolly mammoths to apples and oranges, being able to pick convex shapes out against a more general background has conferred an evolutionary advantage on critters who could do it, especially those predatory animals looking for their next meals. Human ancestors were no different.

A sphere is the simplest of all convex three-dimensional shapes, making it the easiest to for artists to depict using *trompe d'oeil* techniques. A viewer's brain simply *wants* to see spheres if it can!

Spherical Aberrations features two-dimensional works by Artist C.G. Masi celebrating the human eye's love of round forms. Using color, light and shadow, the artist teases the viewer's eye to perceive three-dimensional forms enclosed in a two-dimensional frame.

C.G.Masi

www.cgmasi.com

A Solo Exhibit of Selected Works by C.G. Masi

Spherical Aberrations

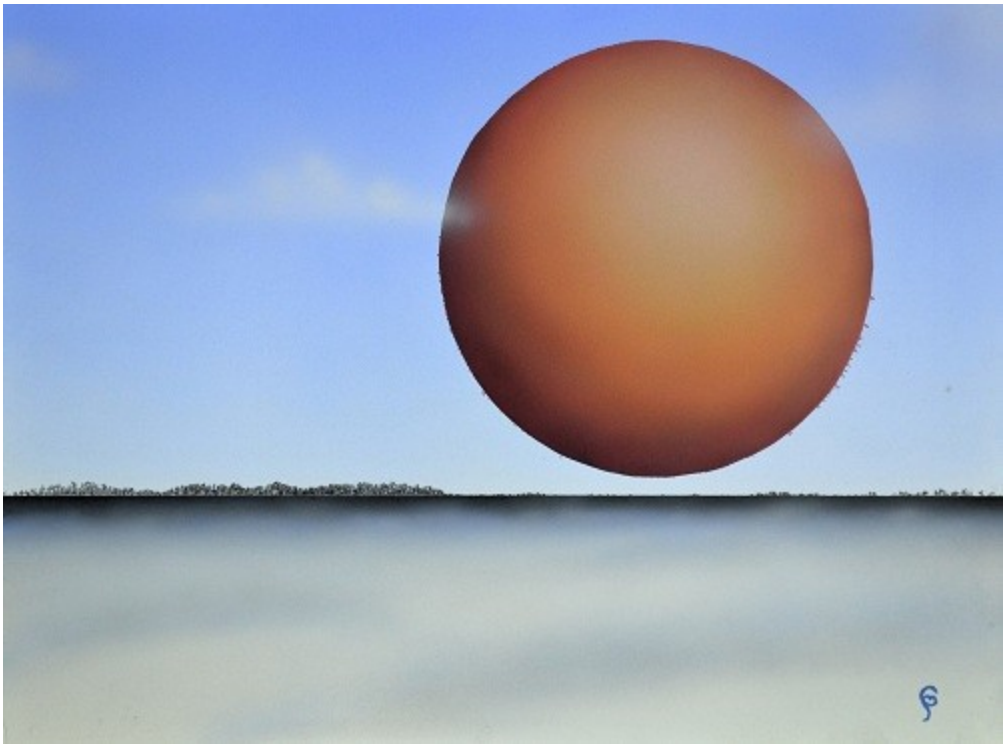
CANCELLED

Samaniego Art
2220 J&C Boulevard
Naples, FL
www.samaniegoart.com

Winter Ball

Acrylic on gesso board

21” X 17”



Golden B-B

Latex on canvas

48” X 48”

Past,
Present,
Future

Latex on canvas

24” X 30”

Rushing

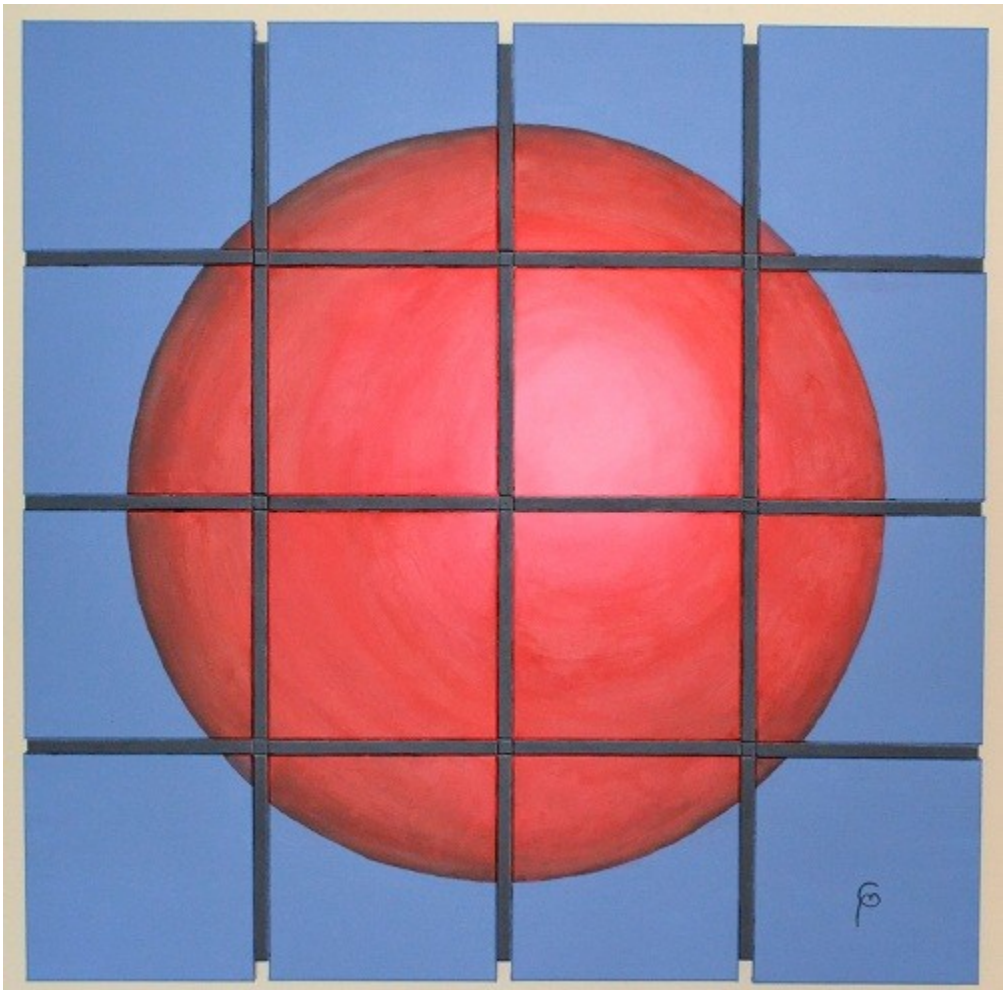
Latex on canvas

30” X 24”

Red Ball

Latex on canvas

50” X 50”



Computer Graphics

I've used computer graphics to generate images for a couple of decades. Mostly I've used relatively simple packages to generate engineering drawings, or block diagrams. Occasionally, I've used more sophisticated software to produce images that were more involved, or that rendered three-dimensional scenes.

Recently, I downloaded the latest version of my favorite 3-D CGI program, Pov-Ray, which simulates the whole photoimaging environment, complete with light sources, cameras, and objects to see. What makes this system most interesting is that it allows the artist to create virtually any conceivable object, set it up anywhere and in any arrangement, and "photograph" it at will.

With this new version of Pov-Ray, I started with an imaginary object, a custom-motorcycle front wheel, that I'd created some years ago using a previous version, and updated it using some of the newer program features, and making it more appealing using ideas I'd learned through practice.

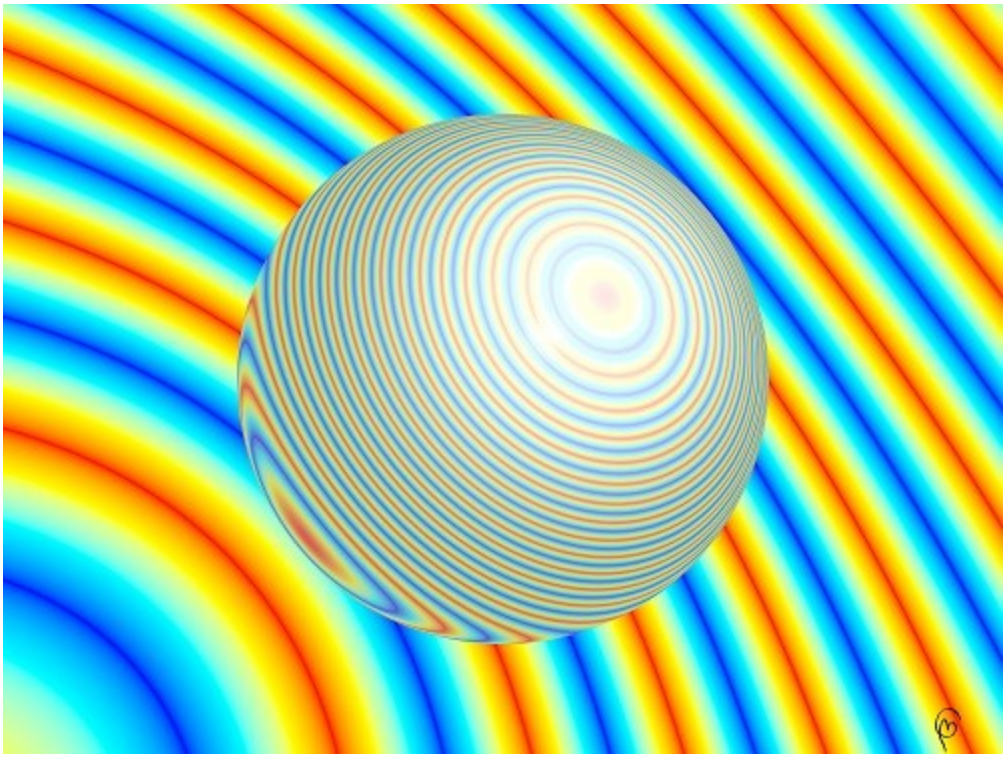
After updating the wheel image, I devised a simple scene consisting of two chrome-plated cones surrounded by a rich background, just to gain practice. The resulting images came out stunningly beautiful, and I decided to start incorporating the technique into my overall portfolio. The finished hardcopy works are printed on a variety of fixed large-format media.

I created these images for the solo show entitled "Spherical Aberrations." The show includes works with a spherical theme in various media. Of course, I couldn't fail to include a computer-generated rendering with a spherical theme! These are the first of my CGI projects that I produced in large format on aluminum.

Sphere 2

Computer graphic image on aluminum

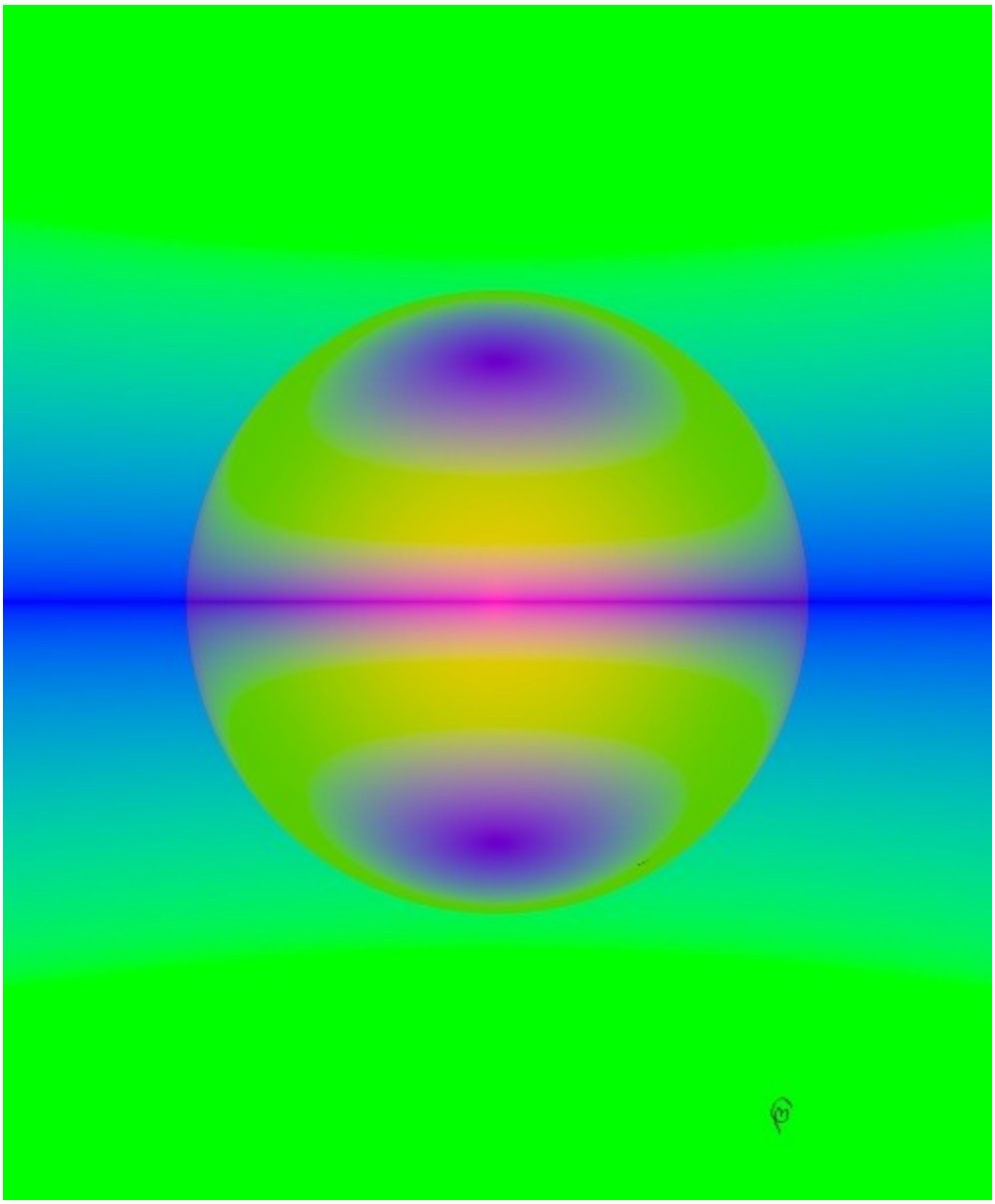
48” X 36”



Sphere 3

Computer graphic image on aluminum

20” X 24”



Drumhead Series

Drumhead Series paintings are inspired by movements of a drum head: a thin, flexible, circular membrane under carefully controlled even tension. Striking such a membrane excites standing waves that wash across the surface. Only certain resonant modes are allowed, however. Each resonant mode forms a pattern that fits perfectly on the circular surface, causing the membrane to move up and down (toward the viewer and away, respectively) at a frequency determined by both the tension in the head and its areal mass density (mass per unit area).

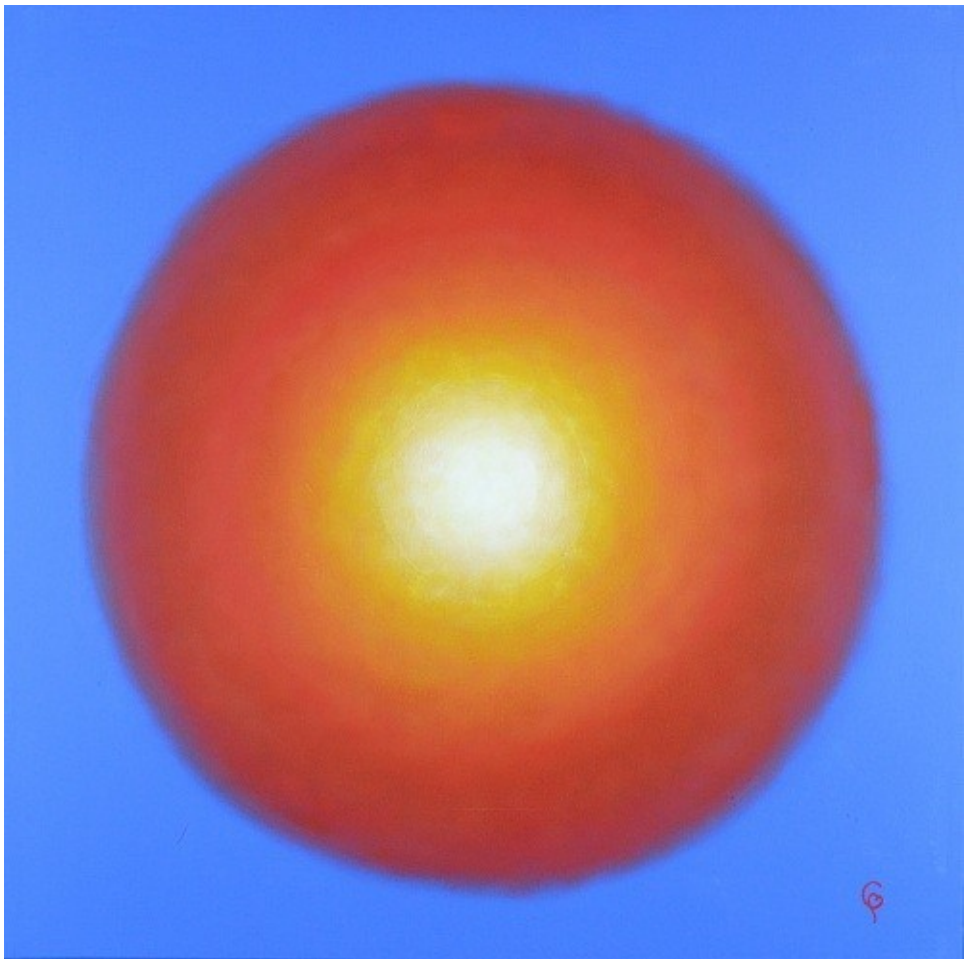
The allowed vibration modes are identified by the lowercase letter *u* followed by two quantum numbers. The first quantum number designates the azimuthal symmetry, identifying the number of nodes counted around the circumference (divided by 2). The second designates the radial symmetry, identifying the number of nodes (minus 1) counted out from the center. Thus, the $u_{1,1}$ mode has two radial nodes (one at the center, and one at the edge), and two azimuthal modes (one at each end of a diametrical neutral stripe.)

These paintings depict a shapshot of a membrane disturbed by one of these vibration modes. A background color signifies the neutral plane of the undisturbed membrane. Relatively warmer colors identify areas where the membrane has moved above the neutral plane, while cooler colors signify movement below that plane.

Drumhead $u_{0,0}$

Latex on canvas

30” X 30”



Drumhead $u_{0,1}$

Latex on canvas

30” X 30”

Drumhead $u_{1,0}$

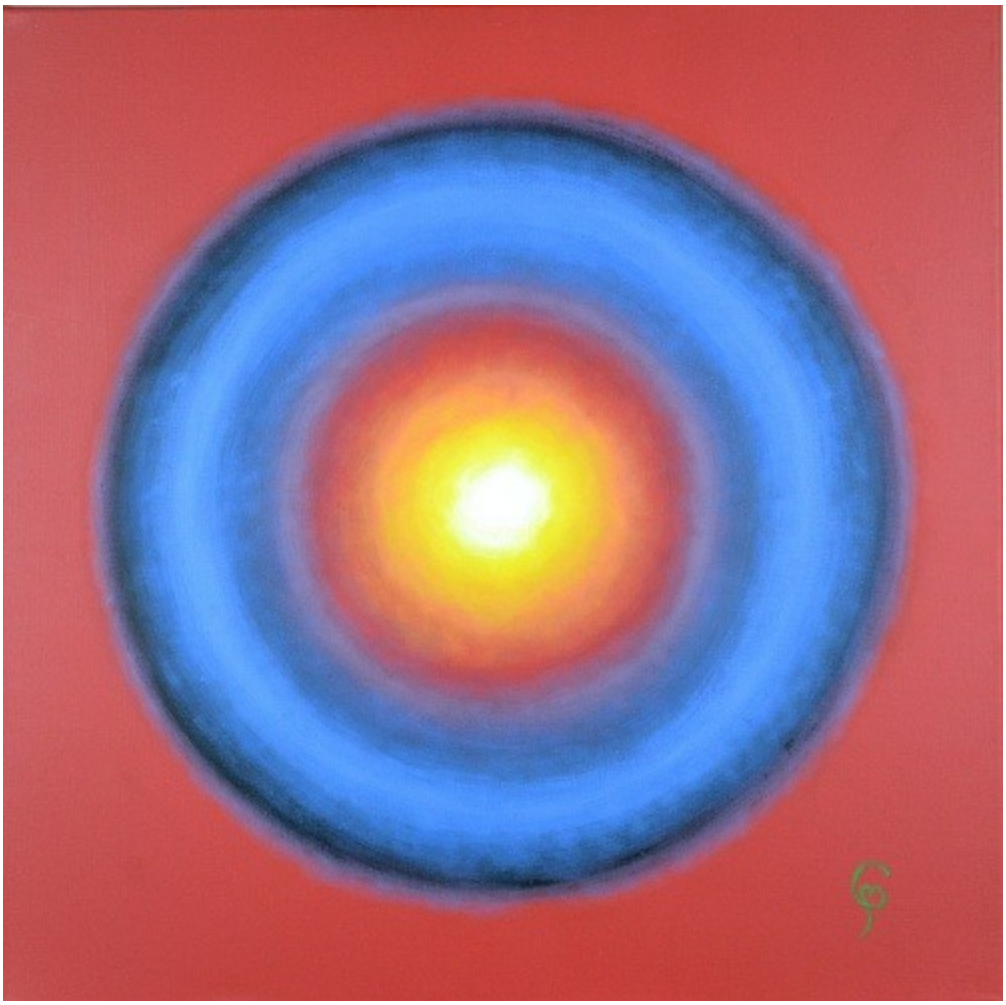
Latex on canvas

30” X 30”

Drumhead u1,0 + 180

Latex on canvas

30” X 30”



Psychedelia Series

A couple of generations ago, folks imagined that taking psychedelic drugs somehow gave them perceptions of a “higher reality” unavailable to normal mortals. Better understanding of how human perceptual systems work has shown that to be bogus. The human brain is a complex, carefully tuned mechanism. Mucking with the system by flooding it with weird chemicals can only interfere with the brain’s best performance. Specifically, psychedelic drugs interfere with its ability to edit out normal illusions created by mistakes in the sensory systems.

These visual and auditory illusions, however, can really be quite beautiful, and the psychological illusions can be quite enjoyable. Psychedelia series paintings celebrate the beauty inherent in them.

Level 5 is the ultimate psychedelic experience. Phosphenes become so bright and pervasive that they completely overwhelm normal perception. The typical bagel illusion fills in to a bright globe of light. The normal world fades from view behind it.

Psychedelia 9 shows the onset of level 5. The real-world scene, with a clear sky seen hrough a gap in surrounding trees, is nearly lost. The overwhelming bright phosphene fills the field of view, with the central phosphene obscuring the background, and radiating spicules overlaying and blocking the nearer trees.

Psychedelia 9

Acrylic on gesso board

25” X 19”