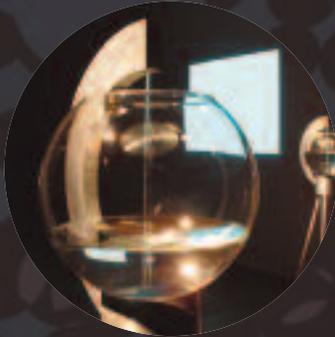


GRAVITY UNBOUND: TIDE AND GRAVICELLS

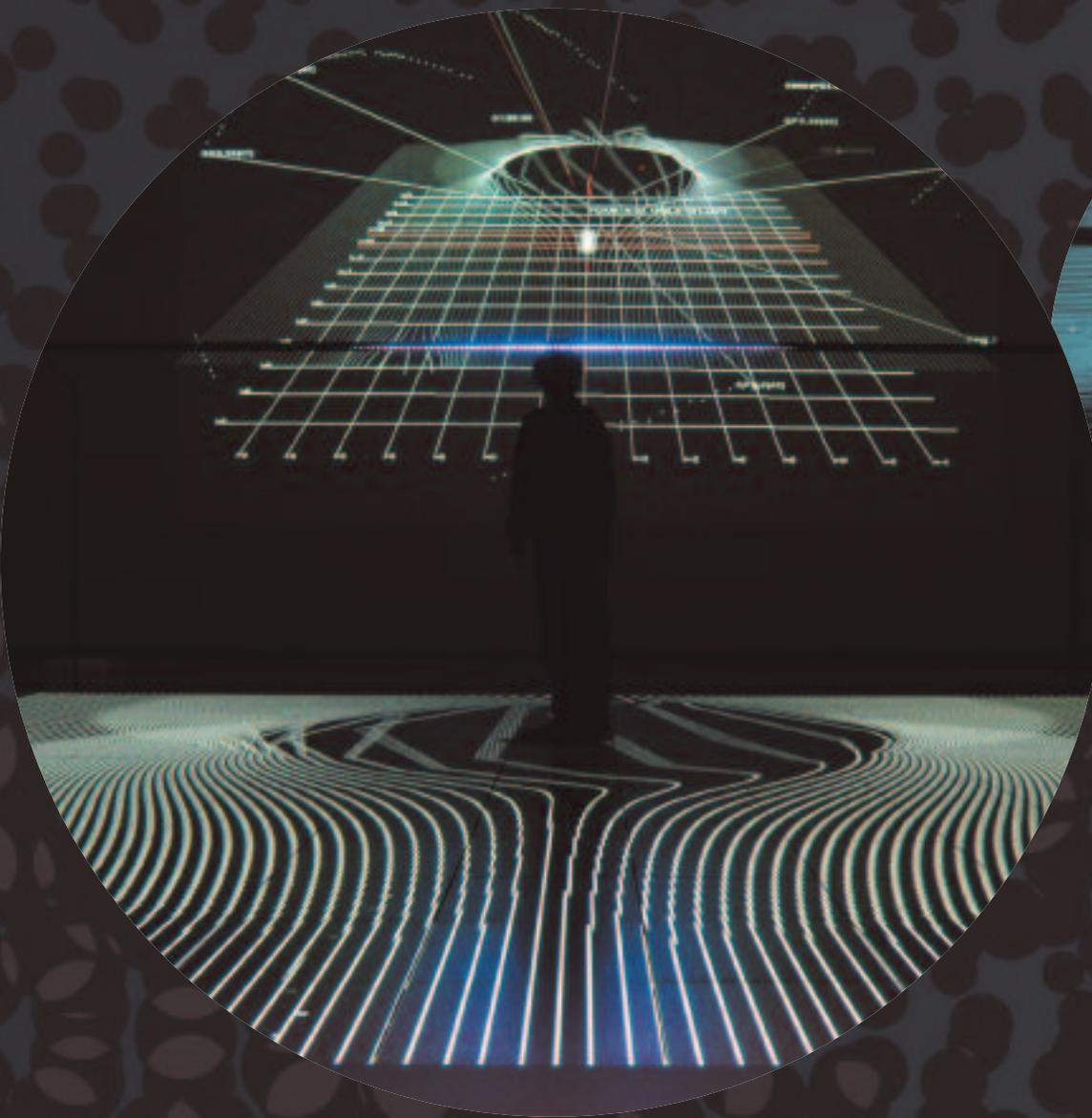
[Art Projects by Luke Jerram, Seiko Mikami and
Sota Ichikawa]

One of the natural forces regulating life on earth most is gravity, defined according to Newton's Law as the force of attraction between bodies that have mass. Yet we hardly seem to pause and contemplate this mundane fact of physics. Any child knows that when you drop something it will fall down to the earth and not float in midair. Grappling with earth's gravity, however, does pervade our everyday life, whether in the way we design objects, build buildings, practice sports or transport ourselves. Humans have always dreamed of defying the gravitational force that binds us to earth and defines us as terrestrials. The Icarus syndrome, expressing the desire to fly and be free from earthly constraints, figures as a prime example. Our language and religious symbolism are ridden with references to gravity. We feel "up," "elevated" or "high" when we are happy, but "low," "down" and "depressed" when sad. The gods in heaven comfortably escape the gravitational pull of the earth; being condemned to the depths of hell seems like the utmost exercise in gravity.

Gravity doesn't only concern the force of the earth on its surface bodies. The gravitational pull of the moon, for example, is responsible for the tidal changes on our planet. The fluctuations in oceanic water levels have inspired astrology, as well as many folk beliefs and religious rituals. Steering well away from populist metaphysics attributed to lunar cycles, but preserving the poetics that imbue celestial bodies, British artist Luke Jerram has created a work that functions simultaneously as an astronomical clock and an art installation. The installation *Tide* is based on the sonification of the gravitational force the moon exerts on the earth:



As the earth and moon move through space and time around the sun, our position also changes within this shifting triangle of spheres. Changes of distance effect changes in the fields of gravity. *Tide* is a live gallery installation controlled by this phenomenon. A gravity meter located in the gallery space measures the changing gravitational pull of the moon and sun on the earth. This information is represented as a video projection showing a full 24 hours of changing gravity. The received data is then made to automatically control water levels within each sculptural object [spinning water-filled glass spheres poised on tripods]. A friction device makes the glass of each sculpture resonate and sing, like a ringing wine glass. The rise and fall of water levels over time from high to low tide change the note produced by each sculp-



SEIKO MIKAMI and
SOTA ICHIKAWA
• "Gravicells" – Gravity and
Resistance Project •

ture. Referencing the planets in movement and form, the resonating spheres of glass create a chorus of sounds, which fill the gallery space. Being "directed" live, these machines are altering their state with the movements of the cosmos.¹

Tide is inspired by the father of the Laws of Planetary Motion, Johannes Kepler. His theories on the Music of the Spheres are based on the Pythagorean ideas of celestial harmony. Pythagoras discovered "the mathematical basis of musical harmony," and Pythagoreans believed that:

[M]usic heal[ed] the body and elevate[d] the soul ... earthly music was no more than a faint echo of the universal "harmony of the spheres." In ancient cosmology, the planetary spheres ascended from Earth to Heaven like the rungs of a ladder. Each sphere was said to correspond to a different note of a grand musical scale. The particular tones emitted by the planets depended upon the ratios of their respective orbits, just as the tone of a lyre-string depended upon its length. Another type of celestial scale related the planetary tones to their apparent rates of rotation around the Earth.²

As Kepler continued the Pythagorean heritage, Jerram's approach to *Tide* is also a holistic one, and succeeds in merging the elegance of scientific precision with the aesthetics of sound sculpture. A microcosm is captured within every glass sphere, emitting its distinct pitch as the water levels rise and fall; it defamiliarizes natural phenomena we take as given, and reminds us that we too are part of a larger cosmic system. *Tide* functions for the spectator on a rather abstract plane that has hermetic qualities: the spheres constitute an order of their own, the glass – though transparent – constitutes a barrier, and our presence as visitors has no effect whatsoever on the workings of the cosmos.

Seiko Mikami's and Sota Ichikawa's responsive audiovisual environment "Gravicells": Gravity and Resistance Project takes up the issue of gravity in relation to our bodies. Starting from the premise that gravity is not materialized without a counterforce, i.e., resistance, Mikami and Ichikawa have designed a dynamic mixed-reality space where the rub between the powers of gravity and resistance can be experienced physically by visitors. The deconstruction of these natural phenomena shifts the visitor's habitual sense of gravity and hence alters the perception of one's body in space.

All movements and changes made by participating visitors are transformed real-time into the movements of sound, light (LED) and geometrical images through the sensors, so that the whole space develops or changes in this interactive installation. The moment a participant stands and moves on the unsteady sensor-fitted floor, the variation of position, weight, and speed is automatically and continuously measured, analyzed, and translated into audio-visual representations, which generate substantial spatial changes. Overlapping with the real physical space, the computerized space reconstructs the spatial geometry, and distorts the coordinates through the participant's weight and position. In addition, the position of the exhibition space is simultaneously measured by GPS, and with plural linked GPS satellites as part of the work it involves several observation points outside of the earth. By corollary the area of our perception has expanded, and confronts us with the fact that the installation site is moving relative to gravity as well.³

In "Gravicells" gravity is used as a perceptive interface and has the effect of making us conscious in a synesthetic way of the natural forces surrounding us. As players, we become autonomous cells in a larger system susceptible to the dynamics of gravity and resistance. Playing with these two opposing forces, we become aware of the potential and constraints the latter hold. The piece provides us with a twenty-first century calculated interpretation of the dissolution of gravity. Icarus would've been jealous.

1. Project description from <http://www.lukejerram.com/installations/tide.htm>
2. For a more detailed explanation: <http://www.skyscript.co.uk/kepler.html>
3. Paraphrased from project description <http://www.g-r.com/>

SEIKO MIKAMI and
SOTA ICHIKAWA
• "Gravicells" – Gravity and
Resistance Project •

