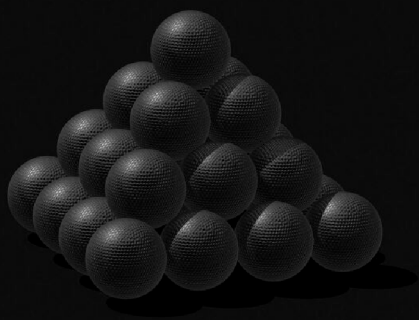


JOFRE OLIVERAS — ARCHIVE



*Dialogue
Between
Civilizations*

JOFRE OLIVERAS · ATOMIC-SCALE SCULPTURE · 2025



THE GREAT PYRAMID OF GIZA

ABSTRACT

Dialogue Between Civilizations is an atomic-scale sculpture inspired by the Great Pyramid of Giza. Gold atoms are meticulously arranged to reflect the mathematical proportions of the pyramid — including its relationships with π , ϕ and the tangent of 51.8° .

The project explores the intersection between ancestral knowledge and contemporary nanotechnology, symbolising a timeless search for understanding.

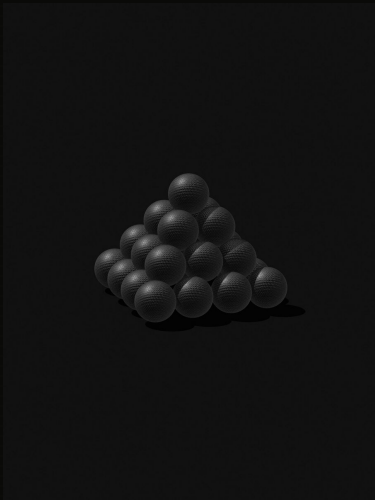
Approximation to the proportions

BASED ON THE BEST APPROXIMATION TO Φ AND 2π

Atoms per base side	23
Atoms in height	15
Height (H)	$4.21 \times 10^{-9} \text{ m} \cdot 4.21 \text{ nm}$
Perimeter (P)	$2.65 \times 10^{-8} \text{ m} \cdot 26.5 \text{ nm}$
Golden ratio (φ)	1.271 ($\rightarrow$ 1.618)
Perimeter / height (2π)	6.295 ($\rightarrow$ 6.2832)
Slope angle	51.8°

BASED ON THE ANGLE ALONE

Atoms per base side	4
Atoms in height	3
Height (H)	$7.32 \times 10^{-10} \text{ m} \cdot 0.732 \text{ nm}$
Perimeter (P)	$4.61 \times 10^{-9} \text{ m} \cdot 4.61 \text{ nm}$
Perimeter / height (2π)	6.295
Slope angle	51.8°



Proportions of the Great Pyramid of Giza

A. Height (h)	146.6 m
B. Base side	230.4 m
C. Semi-base (a)	115.2 m
D. Perimeter ($P = 4 \times 230.4$)	921.6 m
E. Face slope angle	51.8°



GIZA PLATEAU

The relations

- I The ratio between the perimeter and the height reflects a design based on the relationship between the triangle, the circle and the square — which in turn are the sphere, the cube and the pyramid.

$$P / h = 921.6 / 146.6 \approx 6.28 = 2\pi$$

- II The ratio between the height (h) and the semi-base (a) approaches the golden ratio: the height is roughly 1.618 times the semi-base.

$$h / a \approx 1.618 = \phi$$

- III Multiplying the pyramid's original height (146.6 m) by 43,200 approximates the Earth's polar radius; multiplying the base perimeter by the same factor gives the Earth's circumference — suggesting an advanced knowledge of the planet's form and dimensions.

- IV The 51.84° face angle carries several implications. $\tan(51.84^\circ) \approx 4/3$ — the ratio between the height and the semi-base, a simple and elegant proportion. The angle sits close to key divisions in sacred geometry: the regular pentagon (linked to ϕ), the Kepler triangle (which combines π and ϕ), and the angles used in constructions related to the Platonic solids such as the tetrahedron and the icosahedron. Some researchers suggest the pyramid's angles could reflect cosmic relationships, such as the angle between the plane of Earth's orbit and the galactic plane.

$$\tan(\theta) = h / a \approx 51.8^\circ$$