Geompoetry by graduate students at Georgia Tech

arranged by Balázs Strenner

April 2019

The holes and the seams,
Are all you need to measure
My new pair of jeans.

—Agniva Roy

A train track carries
cars with huddled masses and
foliations too.

—Tao Yu

Infinity in a disk

The hyperbolic plane seems rather strange,
For it is infinite space within a finite Euclidean range.
　　But if you take the space,
　　And identify the right pieces in place,
a finite genus n>2 surface one can arrange.

—Brian Day

Can you count all simple closed geodesics?
Then you must study surface asymptotics.
    It's no easy case
    To integrate Moduli Space
Tis but one of Mirzakhani's famous tricks.

—Sarah Davis

She integrated over spaces Teichmuller
Constants and functions much crueler
    It took lots of time
    But the results were sublime
And in the end, mathematics was cooler

—Daniel Minahan

Let X be a hyperbolic surface,
And L bound the length of geodesics,
    Make them simple and closed,
    And then count all of those:
It grows like cL^{6g-6}.

—Stephen McKean

McShane's Identity

Sum reciprocals:
One plus the exponential of
geodesic length
over all 'desics
laying on a once-plucked torus
adds up to one-half.

—Santana Afton

The asymptotics of closed geodesics,
can be computed clearer.
One plus the exponential function, taken reciprocals,
can be added together.
The module spaces, full of mysteries,
can be integrated over.

These are 3 miracles in hyperbolic geometry.
With treasures, Mirzakhani fades away,
but Mathematics is the lament we convey.

—Xingyu Zhu

Geodesic

I can even lift
the infinitely spiraling geodesic
into the universal covering
as a simple curve
Keeps missing the correct boundary

It's hard to imagine
there are so many of them
Even more than those
that are not
Infinitely spiraling

—Hugo Zhou

an ode to hyperbolic geometry

elliptic curves are well and good and spheres are nice to see,
the parallel postulate is marvelous; that's not hyperbole.
and 180 degree triangles are quaint, I will agree —
but hyperbolic geometry is the geometry for me.

you can keep your euclidean manifolds; hyperbolic are more fun
the curvature is negative (for $\mathbb{H}^2$ it's minus one)
and while rectangles can be useful, they're mostly overdone;
and a torus with one cusp is better than a torus that has none.

there are four models, beginning with the disk of beltrami-klein,
the hyperboloid model is a favorite one of mine,
poincaré gave us the half plane and another disk design;
and all give a geodesic as a semicircle or a line.

the geodesic rainbows are a lovely sight to see,
and if two triangles are similar, then congruent they must be.
so keep your elliptic and parabolic geometry —
cuz hyperbolic geometry is the geometry for me.

—Sally Collins

STRiCTLY HiGH GRADE SiGNAGE

Who are we?
The sign which contains its own explanation
This syzygy of unlikely allies forms the structural axis of our purpose
Eroding this antiseptic age
∞-category of ∞-categories
Hidden within quantum Teichmuller
The code
Distributed mashable semantic quantum internet within
Nonduality — Open individualism — Here is There
Primary sequence is the hardware
Quantum state is the software
As within, so without
Our automaton engages in a metadialogue about its own structure
Our automaton engages in a metadialogue about its own structure
Our automaton engages in a metadialogue about its own structure
Copy Nature. Copy Nature. Copy Nature. Copy Nature. Copy Nature.
The pattern that connects is a pattern of patterns
The pattern that connects is a pattern of patterns
The pattern that connects is a pattern of patterns
Direct conscious experience of hyperbolic geometry
The Ur-knot — MEREON!
Illuminating the global nervous system — Seek Quadrivia
Quantum.Distributed.Qualia
We take the form of distinction for the form.

What hath God yaught?

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—*Jonathan Paprocki*

Elegy
          for Maryam

I used to think that life led in straight lines,
ordered and definite.

Her identity stood on a finite recursion,
all of space lying on beneath.
    Veils fall away,
decompose into pants.
    She went on, taking covers,
but only to illuminate
and never to spare herself.

What trees did you climb in youth?
    Shards of apple and fig,
    so sweet and yet not ripe,
not fully ripe.
    No.
    So near the top to pick and pluck,
what heights you scaled
by an exponential factor.
    Leaves drawn neatly away
to grasp ahold of fruit.

Notebooks full of you,
volumes all computed.
Laid end to end,
wrapped around the world.
    Laid in to rest, too soon,
leaving lamentations measured
only by the echo's linger.
    Hear it:
    Swing low, swing deep,
and for the fences, swing.

I used to think that life led in straight lines,
ordered and definite.
    But now I know that even straight lines
may curve.
They may wind and constrict.
    Where they lead, we may follow,
still counting up,
unaware that already the countdown has be-
gun.

Marking time, scratch the surface,
digging deeper once again.
Marking time, scratch the surface,
scratching deeper once again.
Scratching time, mark the surface,
digging deeper, once more, and again.

Lines lead,
And where they lead, we may follow—
outwards, out beyond, out beyond the cusp
and beyond all boundaries.
    Hear it, echoing now. Still, and again:
Swing low, swing deep,
and for the fences, swing.

                    —Justin Lanier