

## Korobov Conference, Moscow 2006

No set-backs, or else they are hid,  
In the tale of what KOROBOV did.

    He zero-freed zeta,  
    Remains the world-beater,  
And neatened the multi-scale grid. [DOBROVOLSKII]

The story of KOROBOV's rise  
From schoolboy collecting a prize:

    Contributions he made  
    Were briefly displayed,  
With CHOPIN to moisten our eyes. [DOBROVOLSKII]

The students that KOROBOV picked  
Had oversight watchful and strict.

    Did he show them the joy  
    Of the prize-winning boy,  
Whose answers were starred, not just ticked? [DOBROVOLSKII]

A circle is drawn by machine  
As a region of dots on the screen.

    Let it go really slow:  
    Can you show it to flow?  
Do you know just which patterns are seen? [HUXLEY]

There's a wonderful view from the hall,  
But that's not where you're risking a fall.

    The lecturer wrestles  
    With blackboards on trestles,  
That nestle not quite on the wall.

KARATSUBA shows, simple and clean,  
How KOROBOV counts in a mean,

    With clever constructions  
    Permitting reductions,  
And plenty of stuff in between.

The contour is deeply indented  
With exceptional zeros prevented.

    Quadratical forms  
    With congruent norms  
Give five squares of primes represented. [GRITSENKO]

Increased productivity yields  
Diagonal forms over fields,

    And BAOULINA  
    Works harder and cleaner,  
Improving each tool that she wields.

Now JABBAROV comes to expound  
His multiple integral bound.  
The axes you want are  
The normal and contour.  
Can some application be found?

As JABBAROV, Ganja's Grey Eminence,  
Digs deep in the minor determinants,  
He integrates normal,  
His contours are formal,  
Does the bound he has found achieve permanence?

To find the transcendence degree  
Is not the same over Queue Pea.  
Factorials come  
Convergent in sum;  
We've no idea what it may be. [NESTERENKO]

The product of shifted divisors  
Presented as small appetisers,  
With a glimpse of the space  
Where the action takes place,  
By the doyen of Dean deputisers. [CHUBARIKOV]

CHUBARIKOV's writing is clear.  
His Russian is easy to hear.  
If mentally nimble,  
I'd join up each symbol:  
A wonderful talk would appear.

With differences equally spaced,  
Can you tell how the sequence is placed?  
VINOGRADOV declares  
You don't have to use squares.  
Can you get second diffs without waste? [HUXLEY]

Some digits are missed all the time.  
Do you still meet each class mod a prime?  
MOSHCHEVITIN's report  
To the meeting's cut short:  
To be in the wrong room is a crime.

And now MOSHCHEVITIN resumes  
His lecture in different rooms,  
With a KLOOSTERMAN sum  
Where two sequences come,  
But I can't recall what he assumes.

Write numbers in powers of two,  
Unique if the next must be new.  
    With restricted repeats,  
    Asymptotics one meets  
Use things that few analysts do. [PROTASOV]

The analysts then all agreed:  
"A jointly spoked wheel, we don't need!"  
    This method of ROTA's  
    Now goes like a Lotus,  
Drives through M.G.U. at high speed. [PROTASOV]

Few analysts (measured by HAAR)  
Know what joint spectral radii are,  
    A lesson that PROTASOV  
    Casu'lly taught us of.  
We witnessed the birth of a star.

The lecture was carefully planned:  
What was said wasn't written or scanned.  
    KOLOMEINIKA shows  
    How much that she knows  
As well as the back of her hand.

A circle through three points you draw,  
Though it goes through a fourth point or more,  
    No symmetries act?  
    Existence is fact,  
But this ought to be rare, I am sure. [HUXLEY]

Take all fractions  $a$  over  $q$   
In a sequence: are most of them new?  
    How fast must they grow  
    Before you can know?  
Will somebody give us a clue? [MOSHCHEVITIN]

Two classes of vectors you get,  
The entries of each from some set.  
    Five authors declare  
    An orthogonal pair,  
And some of the five never met. [PAPPALARDI]

A group whose exponent is two,  
What set as a basis will do?  
    Can anyone show  
    How fast they should grow?  
Are you sure that this problem is new? [PAPPALARDI]

Do planets in order fly round,  
Or by resonance crash to the ground?  
    Uranus and Saturn  
    Are locked in a pattern;  
That's how outer planets are found. [BYKOVSKII]

There are primes down below, almost sure  
(DUFFIN-SCHAEFFER), but can we say more?  
    A result of some strength:  
    The loglog of the n-th  
Almost always is n by log four. [BYKOVSKII]

BYKOVSKII gets faster and faster,  
Like an acrobat risking disaster.  
    He's revered by the young;  
    If he trips on his tongue,  
Will they scream, and rush out with a plaster?

Continuing fraction relation,  
What can be the gen'ralisation?  
    We're invited to mull  
    Over KLEIN's convex hull,  
Does it carry the right information? [BRUNO]

When so many mathematicians  
Must speak under certain conditions,  
    There is rather a fog  
    Over change in the prog,  
But "today there are no transpositions". [KONYAGIN]

The cubic with one real root,  
A hunter sets off in pursuit.  
    He paid for a permit,  
    Took help from the HERMIT,  
To bring him so close he can shoot. [PARUSNIKOV]

They don't stop the talks with a bell.  
Now BRUNO has got up as well.  
    There's something I do know  
    In the musings of BRUNO:  
The degree can be two kay plus ell.

So when will the lectures resume?  
And is it the very same room?  
    Are the windows shut tight?  
    Will they switch on a light,  
Or leave us to write in the gloom?

The minimum points on a lattice,  
For a set, well, it's understood, that is.  
    If you vary the set,  
    What points do you get?  
Quite a lot, AVDEEVA threw at us.

AVDEEVA was rapidly gushing,  
Eliciting heated discussion,  
    With various bods  
    Quite clearly at odds;  
But I don't know why; it's in Russian.

Says GORKUSHA, "HEILBRONN was square.  
Let me put a pincushion there".  
    Her body got thinner  
    At subsequent minima:  
Just a log, just a stick, just thin air.

It's a polygon close to a line,  
But two conjugate lines should combine,  
    And GERMAN has shown  
    A polygonal cone,  
Whose combinatorics are fine.

The continuous and the discrete,  
Some suppose that they never shall meet,  
    But KOROBOV knows  
    That connections arose:  
Where they meet can be neat and complete. [USTINOV]

The finite continuing fraction  
Gave HEILBRONN some short satisfaction.  
    Have estimates been off?  
    Consult with USTINOV,  
Who'll square what stays there on subtraction.

Red Square was parading the guard,  
But the galleries hadn't been barred.  
    The meal at Shesh-Besh'll  
    Go down as quite special  
For a visitor feted and starred.

Does HUXLEY have little compunction  
Exposing a glaring disjunction?  
    VASILYEV's density  
    Changes intensity;  
It should be a linear function.

The queues in a sequence are caught.  
Will the frequencies be what they ought?  
    If a sieve bound is known,  
    Then VASILYEV has shown  
The convergence case easily wrought.

Ideas that STEPANOV will talk of,  
Not MARKOV, a Slovak called MORKOV,  
    But Russian was poured  
    With few words on the board.  
If I start getting bored, shall I walk off?

Non-linear q-ary code,  
All multiplicative in mode,  
    Two-thirds of the length,  
    For distance, is strength.  
Can this be what STEPANOV showed?

Right triangles ev'ryone knew,  
And scalene ones EULER could do.  
    Fold four copies round,  
    A solid is found:  
Its volume's an integer too. [MITKIN]

The forms upon WILLERDING's list,  
A number of them had been missed.  
    But CONWAY has shown,  
    Small numbers alone:  
If it works to fifteen, they persist. [BUDARINA]

When it's primitive reps that you treat,  
Then eight as two squares is a cheat.  
    BUDARINA's begun  
    Case of class number one:  
If four and eight work, it's complete.

Approx to one root, we can do.  
For a cubic, let's try it for two.  
    Let BERNIK explain to us,  
    Both simultaneous,  
Correct up to height to the nu.

Cube roots by continuing fraction,  
That old dream's not lost its attraction.  
    Don't lift to R three,  
    Just climb up a tree,  
You can see periodical action. [ZAKIROV]

No trees here for picking the fruit off,  
It's down on the floor, get your boot off,  
    Examine the tile,  
    No return for a while,  
Discrepancy follows, says SHUTOV.

Not one scale of numbers for all,  
Each alpha its own must install.  
    When you need a new digit,  
    The structure is rigid,  
'N alpha discrepancy's small. [SHUTOV]

Take mediants immediately,  
And that's what we call FAREY tree,  
    But Muscovite folk know  
    As sequence of BROCOT:  
As she spoke, I still wondered who's he. [DUSHISTOVA]

The work that DUSHISTOVA's done  
Follows what MOSHCHEVITIN begun.  
    The treatment is trim,  
    The error term's slim,  
Raising gaps to a pow'r less than one.

Where the FOURIER transform amasses  
For a sequence of residue classes,  
    Shows what it is made of  
    According to SHKREDOV,  
Who previous theorems surpasses.

There's a phone there affixed to the wall,  
But I can't read instructions at all.  
    "Insert the detergents"?  
    "Deter the insurgents"?  
"Emergency number. Please call."?

CARMICHAEL considered back then  
The maximal order mod  $n$ .  
    Less pretty than  $\phi$ ,  
    Folk let it pass by  
Till cryptography called it again. [PAPPALARDI]

For  $\phi$ ,  $k$ -free values are few,  
With  $\log \log$  to the  $\kappa$  minus two.  
    PAPPALARDI and Co.  
    Make the log power grow  
For  $\lambda$ , with  $k$ , and that's new.

For the values of  $\phi$ , only few  
Can't be written as  $\lambda n$  too.  
No exceptions appear  
Till you go past the year  
When KOROBOV joined M. G. U.. [PAPPALARDI]

The powers of sets, can they be a  
Good additive basis mod  $p$ ? A  
New work of GLIBICHUK-  
KONYAGIN can reach a c-  
Conclusion by RUZSA's idea.

What EDGAR and MILLER could say  
Extends in the following way.  
A powerful notion,  
The difference quotient,  
Keeps some overlapping away. [KONYAGIN]

If quotients are functions of  $z$ ,  
Can anything ever be said?  
Well, Maths is all junctions:  
You need special functions  
I would not like to find in my bed.

GAUSS, generous, never a hoarder,  
Gave a fractional form. Are there more there,  
Or is this a one-off?  
No, says SPIRIDONOV,  
Quadratics give twelve as the order.

Change signs in continuing fractions,  
It sometimes enables contractions.  
What are SBIGNEV's phenomena?  
BYKOVSKII draws minima,  
And the audience splits into factions.

Most combinatorists collaborate,  
And cliques are the way that they operate.  
RAIGORODSKII alone  
No-clique graph has shown,  
"Explicit, but rather elaborate".

ROZHDESTVENSKII has set out before us  
Irrational shifts on the torus,  
That move the next lecture  
And the heavy projector  
Around in the sector to floor us.



The VORONOĬ cell for a lattice,  
A parallel-ohedron, that is,  
    Which RYSHKOV and staff  
    Represent as a graph,  
That should tell you something that matters

To declare limit points existential,  
Being outside your field is essential.

    "You mean, necessary!"

    "Essential, it's very!"

This argument has some potential. [DUBIČKAS, ZUDILIN, KONYAGIN]

The digits are zero and nine.  
THUE-MORSE tells you how to combine.

    No integer near

    Will ever appear,

Wherever the decimal sign. [DUBIČKAS]

Though measures make theorems look neater,  
The pleasures of proof are no sweeter.

    "It's weakly convergent.

    Our problem is urgent.

We must find support to P zeta." [LAURINČIKAS]

Combinations of L-functions next,  
With a shift down below to select,

    At more than one height

    It approximates right,

Universal, just as we expect. [LAURINČIKAS]

Lithuanian int'rests are ubiq-  
-uitous: why not patent like RUBIK?

    Is Vilnius' future

    The quantum computer?

Irrationals now can be "qubic". [DRUNGILAS]

KURT MAHLER, so short and emphatic,  
Took measures that sounded thematic.

    DRUNGILAS's pleasures

    A difference of measures,

For qubic, at least, and quadratic.

I went and put on after lunch  
The T-shirt of FERMAT's Last Hunch,

    But back in the hall,

    No-one read it at all.

They must be a serious bunch.

They can profit from APERY's trick,  
Who have not sold their souls to OLD NICK.  
"For two zeta and log,  
I have halved by a slog  
The exponent in Minsk", says GUTNIK.

BOCHAROVA's not here to take credit,  
So the Great DOBROVOLSKII has read it.  
How divergent becomes  
One of KOROBOV's sums...  
But the slides were too long, so he sped it.

The Small DOBROVOLSKII will treat a  
New version of multiple zeta  
In KOROBOV's name:  
A lattice, shift frame...,  
But no link to JACOBI's theta?

A subject is seldom as flat as is  
The H-zeta function of lattices.  
If praise hyperbolic  
Could make it a frolic,  
I'd gladly give up all my Saturdays. [M.N. DOBROVOLSKII]

Tell anyone wanting to know  
How the queues that are closest do grow.  
In four steps it's more  
Than the two just before  
End to end, we saw ROMANOV show.

BOLSHAKOVA went over today  
The lecture that RYSHKOV should say,  
And as we expect,  
To show some respect,  
The audience, in the main, stay.

The corner's the point of attacking  
To clarify lattice and stacking.  
There are types and domains;  
Where they join are the mains-  
-Tay parallelhedra of packing. [BOLSHAKOVA]

Though KOROBOV's passing has thinned us,  
We shouldn't be split into splinters.  
We'll publish his Trudy  
And honour by study,  
And writing joint papers for INTAS. [CHUBARIKOV, KONYAGIN]