

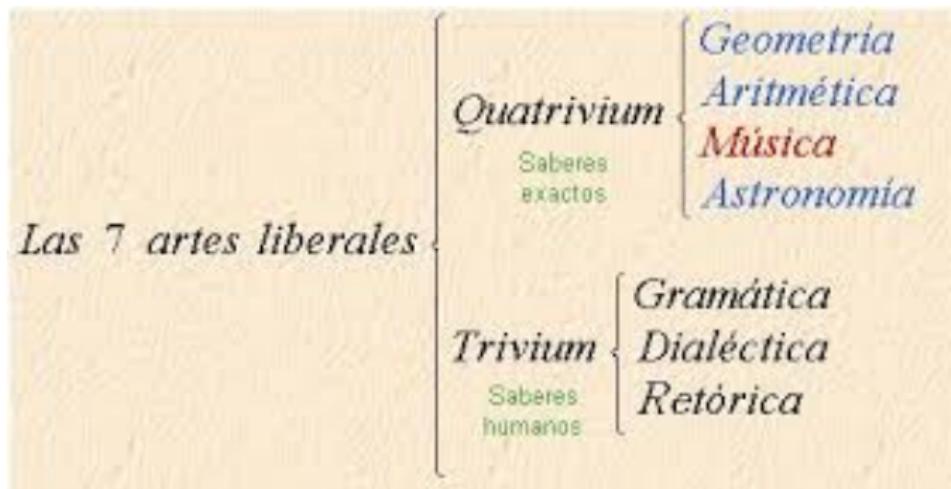
# Mathematics for Liberal Arts

Andrei Rodin

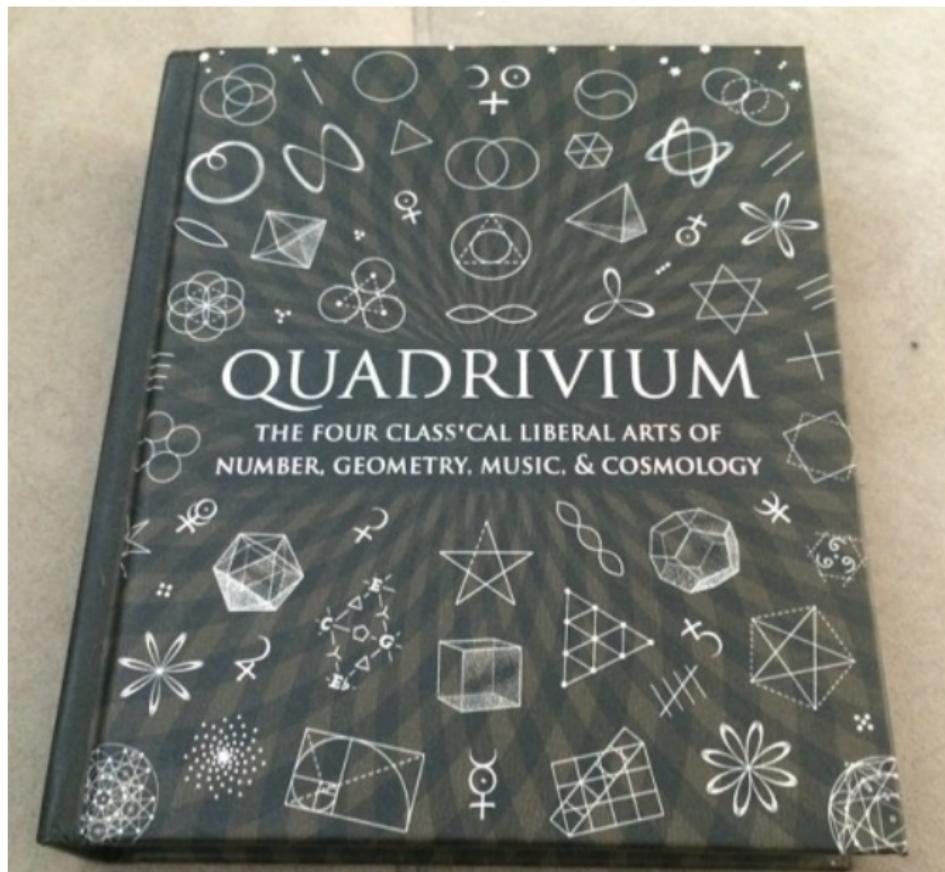
INTELLECTUAL FOUNDATIONS OF MODERN LIBERAL  
EDUCATION

Saint-Petersburg Nov 14-16, 2014

# 7 Liberal Arts



# Quadrivium



# Georg Cantor (1845 -1918)



Das Wesen der Mathematik  
liegt in ihrer Freiheit

# Leonhard Euler (1707-1783)



On peut bien avoir des doutes  
sur la liberté d'un autre, mais  
jamais on ne saurait se tromper  
sur sa propre liberté.

# Esenin-Volpin (born 1924)



Нам нужно освободиться от влияния людей с их кургузым языком и найти научное выражение для понятия свободы. И только когда мы этого добьемся, мы сможем доверять своим мыслям.

We must free ourselves from the influence of people with their docked language and find a scientific expression for the concept of freedom. Only when we attain this shall we be able to trust our own thoughts.

# Which maths for liberal arts?

Maths linked NOT ONLY to Natural Sciences and Technology

but ALSO to..

history

COMMENTARI  
ACADEMIAE  
SCIENTIARVM  
IMPERIALIS  
PETROPOLITANAEE.

TOMVS VIII.  
AD ANNVM MDCCXXXVI.



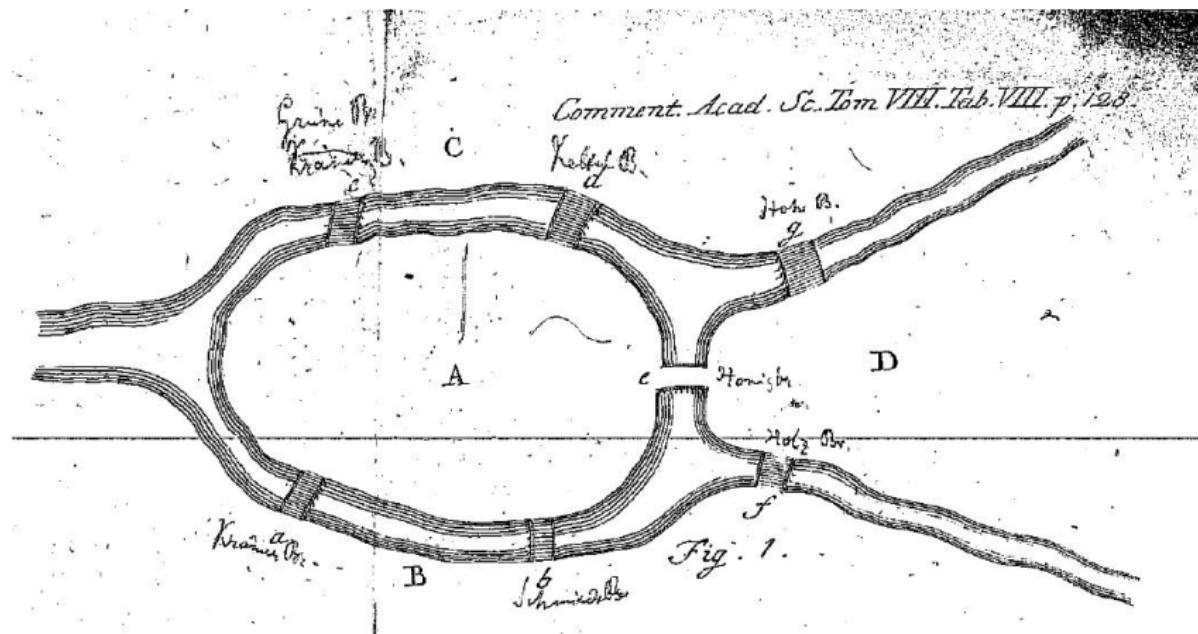
PETROPOLI,  
TYPIS ACADEMIAE d:b:xxli.

128 SOLVATIO PROBLEMATIS  
SOLVATIO PROBLEMATIS  
AD  
GEOMETRIAM SITVS  
PERTINENTIS.  
AVCTORE  
Leobn. Euler.

§. I.

Tabela VIII. Praeter illam Geometriae partem, quae circa opes  
naturae veritatis, et omni tempore summo figura  
est exculta, alterius partis etiamnum admodum  
ignota primus mentionem fecit Leibnitius, quam G  
eometriam situs vocavit. Ista pars ab ipso ab folio  
determinando, sicutque proprietatibus erundis occi  
esse statuitur; in quo negotio neque ad quantitates  
spicendum, neque calculo quantitarum venandum.  
Cuiusmodi autem problemata ad hanc situs Geometriam  
pertineant, et quali methodo in iis resoluenda vi o  
teat, non fatis est definitum. Quamobrem, cum in  
problematis cuiusdam meatio esset facta, quod qui  
ad geometriam pertinere videbatur, at ita erat  
paratum, ut neque determinationem quantitatum re  
rer, neque solutionem calculi quantitatum ope ac  
teret, id ad geometriam situs referre haud dub  
pserit; quod in eis solitus situs in con  
rationem veniat, calculus vero nullius profus fit.  
Methodum ergo meam quam ad huius generis pr

history

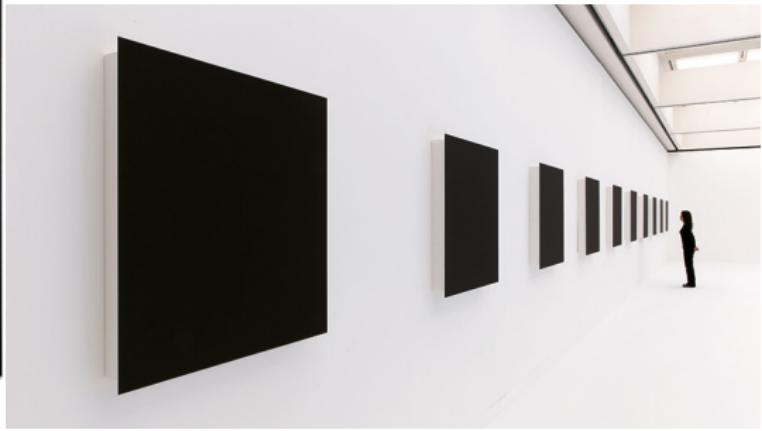


Αγεωμέτρητος μηδεὶς εἰσίτω

$$R = \{x | x \notin x\}$$

$$\aleph_1 = 2^{\aleph_0}$$

## Ryoji Ikeda: Mathematics results from the purest beauty



music

TENTAMEN  
NOVAE THEORIAE  
**MVSICAE**  
EX  
CERTISSIMIS  
HARMONIAE PRINCIPIIS  
DILVCIDE EXPOSITAE.  
*AUCTORE*  
**LEONHARDO EVLERO.**



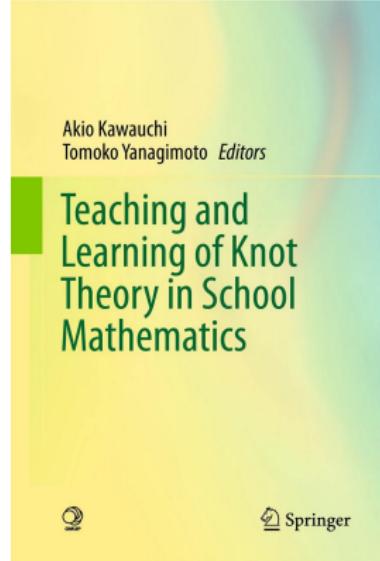
PETROPOLI, EX TYPOGRAPHIA ACADEMIAE SCIENTIARVM,  
sob hcc xxxix.

# architecture



Can it be serious? YES

Is a compromise against  
professional mathematical  
standards unavoidable? NO



## 7.2 Knot Theory in School Mathematics as liberal art and education

The technical book of knot theory is for a technical researcher training textbook for a liberal art and a teacher training, the following elements were counted at least.

1. A preliminary knowledge is not needed for the student.
2. The student realizes happiness to build mathematics.
3. The ability to teach it as a child education is cultivated.

# THANK YOU