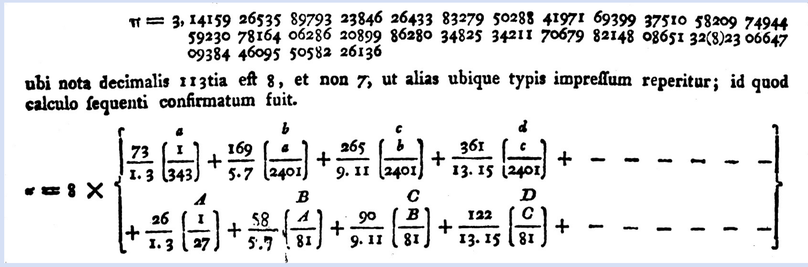
Jurij Vega

⋆ 1754 Zagorica, Dolsko – † 1802 Nussdorf, Vienna

Jurij Vega acquired his basic knowledge from the local parish priest. In 1767 he became involved in the 6-year lower Jesuit studies and graduated in 1773. He then studied philosophy at the Ljubljana Lyceum for two years, along with mathematics and physics. After successfully completing his studies in 1775, he was employed as a navigational engineer. In 1780 he enlisted in Vienna among the artillerymen of the Imperial Army, where he progressed from lieutenant to lieutenant colonel. He participated in battles in several places across Europe, improved mortars and taught mathematics, published his lectures in 4 volumes and tables of logarithms, published several mathematical articles. He sought to introduce the metric system in the Habsburg Monarchy and became a member of several European academies. In 1800 he was awarded a hereditary baronial title. He tragically ended his life on September 23, 1802, near Vienna.



$\pi = 3,14159\ 26535\ 89793\ 23846\ 26433\ 83279\ 50288\ 41971\ 69399\ 37510\ 58209\ 74944\ 59230\ 78164\ 06286\ 20899\ 86280\ 34825\ 34211\ 70679\ 82148\ 08651\ 32(8)23\ 06647\ 09384\ 46095\ 50582\ 26136$

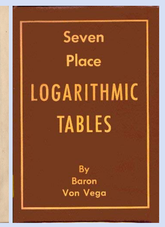
ubi nota decimalis 113tia eſt 8, et non 7, ut alias ubique typis impreſſum reperitur; id quod calculo ſequenti confirmatum fuit.

$$\pi = 8 \times \left\{ \begin{array}{l} \overset{a}{\frac{73}{1.3}\left(\frac{1}{343}\right)} + \overset{b}{\frac{169}{5.7}\left(\frac{a}{2401}\right)} + \overset{c}{\frac{265}{9.11}\left(\frac{b}{2401}\right)} + \overset{d}{\frac{361}{13.15}\left(\frac{c}{2401}\right)} + - - - - - - \\ \overset{A}{+\frac{26}{1.3}\left(\frac{1}{27}\right)} + \overset{B}{\frac{58}{5.7}\left(\frac{A}{81}\right)} + \overset{C}{\frac{90}{9.11}\left(\frac{B}{81}\right)} + \overset{D}{\frac{122}{13.15}\left(\frac{C}{81}\right)} + - - - - - - \end{array} \right\}$$

The number π published in Vega's Thesaurus Logarithmorum Completus

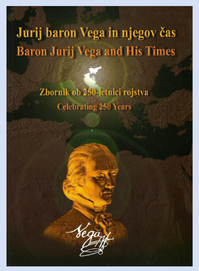
THE CONTRIBUTION OF JURIJ VEGA IS MENTIONED, NOT BECAUSE HE WORKED HARDER THAN HIS CONTEMPORARIES, BUT BECAUSE HE HAD A BETTER ALGORITHM.

He published logarithm tables. They have been translated to other languages.

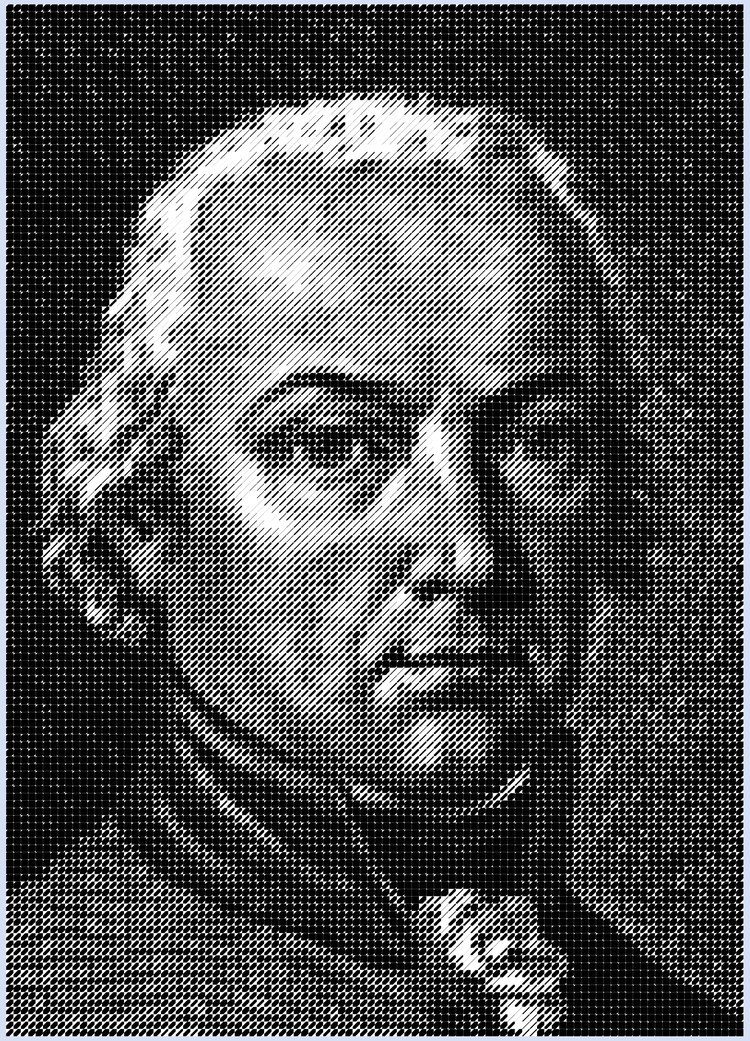


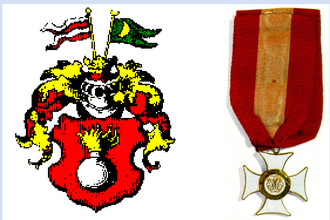
Zagorica: Vega's birthplace – Vegov rojstni kraj

Jurij Vega si je osnovno znanje pridobil pri moravškem župniku. Leta 1767 se je vključil v 6-letne nižje jezuitske študije, ki jih je končal 1773. Nato je dve leti študiral na ljubljanskem liceju filozofijo, skupaj z matematiko in fiziko. Po uspešnem koncu študija 1775 se je zaposlil kot navigacijski inženir. Leta 1780 se je vpisal na Dunaju med topničarje cesarske armade, kjer je napredoval od poročnika do podpolkovnika. Sodeloval je v bojih v več krajih po Evropi, izboljšal možnarje, predaval matematiko, izdal svoja predavanja v 4 zvezkih in tabele logaritmov, objavil več matematičnih člankov, si prizadeval za uvedbo metrskega sistema v habsburški monarhiji in postal član več evropskih akademij. Leta 1800 je dobil dedni baronski naslov. Svoje življenje je tragično sklenil 23. septembra 1802 blizu Dunaja.



Vegovo najpomembnejše delo je desetmestni logaritmovnik – *Thesaurus logarithmorum completus* – *Vollständige Sammlung größerer logarithmisch-trigonometrischer Tafeln*, ki je izšlo 1794 v Leipzigu. Tu je objavil število π na 136 pravilnih decimalk.





Vega was awarded the Order of Maria Theresa and a title of hereditary baron including the right to his own coat of arms.

Created by I. Hafner, M. Razpet, N. Razpet

Franc Močnik

⋆ 1814 Cerkno – † 1892 Graz

Močnik attended the gymnasium and then the Lyceum in Ljubljana, then he entered the Roman Catholic seminary of Gorizia. He became a teacher in the Normal School in Gorizia. In parallel with his teaching, he studied mathematics at the university level and became a doctor of philosophy. After 4 years working in Gorizia he moved to Lvov, where he was a professor of elementary mathematics. Later he became a professor of mathematics in Olomouc. As inspector of primary schools he worked in Ljubljana, Gorizia and Graz, where he was also responsible for supervising secondary schools in Styria and Carinthia.

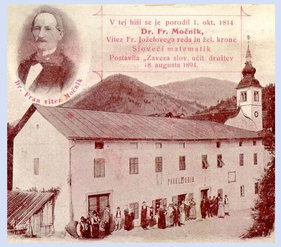
Leopold Karl Schulz von Strassnitzki

Augustin-Louis Cauchy

His teacher for mathematics at the Ljubljana Lyceum was Leopold Karl Schulz von Strassnitzki. Močnik followed the same pedagogical principle that guided his teacher. After meeting in Gorizia, Močnik was encouraged by Augustin-Louis Cauchy to publish his ideas about teaching mathematics. Močnik then published his most important scientific work: *Theorie der numerischen Gleichungen mit einer Unbekannten. Mit besonderer Rücksicht auf die neueste von Cauchy erfundene Auflösungsmethode.*

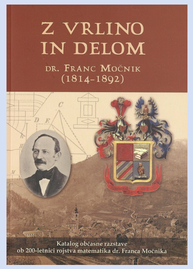
Močnik improved the general level of education in Central Europe.

He wrote 148 textbooks in 980 editions. They have been translated from German to 14 other languages.



Cerkno: Močnik's birthplace – Močnikov rojstni kraj

Močnik je obiskoval ljudsko šolo v Idriji, gimnazijo in licej v Ljubljani in bogoslovje v Gorici. Študij je nadaljeval na vseučilišču v Gradcu, kjer je tudi doktoriral. Najprej je služboval kot učitelj na goriški normalki, nato pa je bil profesor elementarne matematike in trgovskega računstva na tehniški akademiji v Lvovu, profesor matematike na vseučilišču v Olomucu, šolski svetnik in nadzornik ljudskih šol v Ljubljani, šolski svetnik in nadzornik ljudskih šol in realk v Gradcu ter deželni šolski nadzornik prve stopnje za Štajersko in Koroško.



Nanj so imele velik vpliv metode poučevanja profesorja matematike na liceju, Leopolda Karla Schulza von Strassnitzkega. V Gorici se je srečal z Augustinom-Louisom Cauchyjem. Ta ga je vzpodbudil, da je začel pisati knjige o metodah poučevanja in da je napisal edino matematično znanstveno delo, *Theorie der numerischen Gleichungen mit einer Unbekannten. Mit besonderer Rücksicht auf die neueste von Cauchy erfundene Auflösungsmethode*. Največja Močnikova zasluga je dvig ravni poučevanja v Srednji Evropi. V nemškem jeziku je napisal 148 učbenikov, ki so imeli skupaj 980 izdaj in bili prevedeni v 14 drugih jezikov.

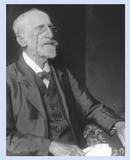
Močnik received several honours for his contributions to education: coat of arms, order of Franz Joseph, order of Iron Crown and became a Knight.

Created by I. Hafner, M. Razpet, N. Razpet

Josip Plemelj

⋆1873 Grad, Bled – †1967 Ljubljana

After four years at high school Plemelj had covered the whole school mathematics syllabus. In 1894 he entered the University of Vienna to study mathematics, physics and astronomy. In 1898 he was awarded his doctorate. Thereafter he studied in Germany with Frobenius, Fuchs, Klein and Hilbert. Hilbert saw the importance of Fredholm's theory of integral equations. Plemelj was a major contributor to this work and he made major advances.



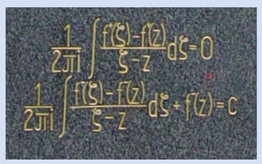
Gustav von Escherich

Monatshefte

Prince Jablonowski Prize

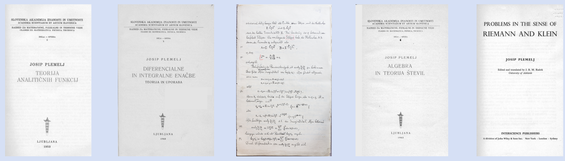
In 1902 Plemelj was appointed as a Privatdozent at the University of Vienna, in 1906 as a teaching assistant at the Technical University of Vienna, in 1907 as an associate professor at the University of Chernivtsi, and in 1908 as full professor of mathematics. Plemelj discovered equations relating to boundary values of holomorphic functions and solved Riemann's problem in 1908. Plemelj also made important contributions to the theory of analytic functions and differential equations. In 1919, a Slovene university opened in Ljubljana, with Plemelj as its first Rector. Plemelj's presence in Ljubljana was important for the development of mathematics and the other sciences among Slovenes. He held a general course of mathematics and lectured on differential and integral equations, the theory of analytic functions, algebra, and number theory. These courses became the basis of three corresponding textbooks. His final work, *Problems in the Sense of Riemann and Klein* appeared in 1964.

"The engineer who does not know mathematics never needs it. But if he knows it, he uses it frequently ..."

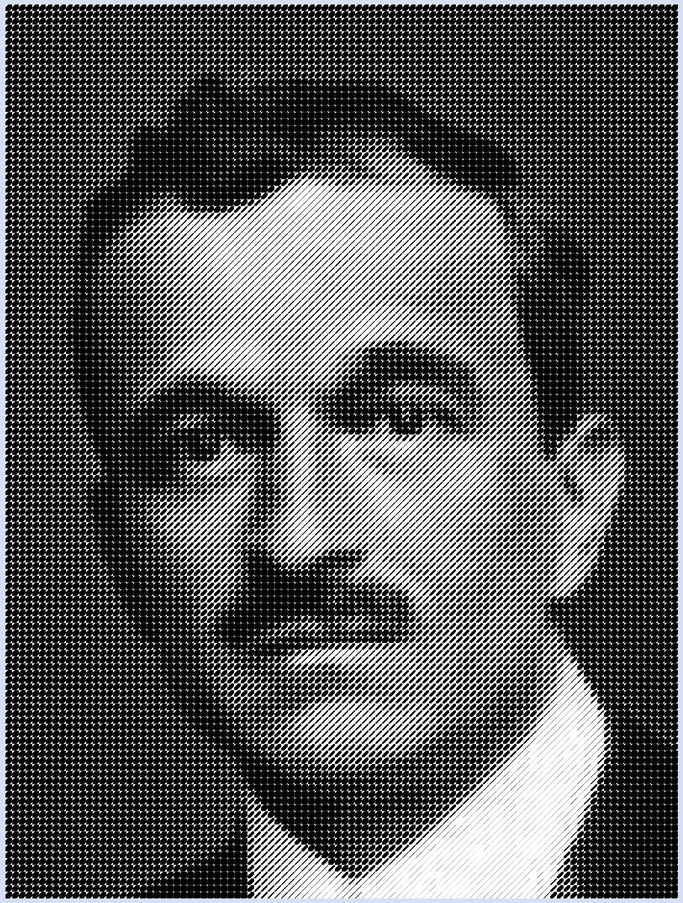


Grad, Bled: Plemelj's birthplace – Plemljev rojstni kraj

Po štirih letnikih gimnazije je Plemelj obvladal vso gimnazijsko matematiko. Leta 1894 se je vpisal na dunajsko univerzo, kjer je študiral matematiko, fiziko in astronomijo. Leta 1898 je doktoriral in nato študiral v Nemčiji pri Frobeniusu, Fuchsu, Kleinu in Hilbertu. Slednji je spoznal pomembnost Fredholmove teorije integralskih enačb. Plemelj je k temu prispeval velik delež.



Leta 1902 je Plemelj postal privatni docent na dunajski univerzi, leta 1906 pa še asistent na dunajski tehniški univerzi. Leta 1907 je bil imenovan za izrednega, leta 1908 pa za rednega profesorja matematike na univerzi v Černovicah. Plemelj je 1908 našel enačbe, ki so povezane z robnimi vrednostmi holomorfnih funkcij, in rešil Riemannov problem. Pomembno je tudi njegovo delo v teoriji analitičnih funkcij in diferencialnih enačbah.
V Ljubljani je bila leta 1919 ustanovljena slovenska univerza, katere prvi rektor je bil Plemelj. Njegova prisotnost v Ljubljani je bila pomembna za razvoj matematike in drugih znanosti. Predaval je splošno matematiko, diferencialne in integralske enačbe, analitične funkcije in algebro s teorijo števil. Predavanja so postala osnova za tri ustrezne knjige. Njegovo zadnje delo je knjiga *Problems in the Sense of Riemann and Klein*, ki je izšla leta 1964.



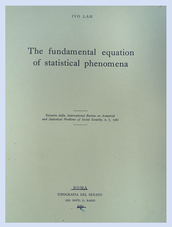
His Villa was bequeathed by him to the Society of Mathematicians, Physicists and Astronomers of Slovenia. Today it contains a memorial to one of the most famous mathematicians of Slovenia.
For his contributions in integral equations and potential theory Plemelj was awarded the Prince Jablonowski Prize and the Richard Lieben Prize. He became a member of several academies. The University of Ljubljana awarded him an honorary doctorate in 1963.

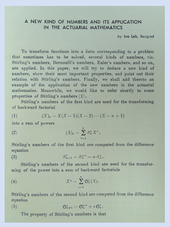
Created by I. Hafner, M. Razpet, N. Razpet

Ivo Lah

⋆ 1896 Štrukljeva vas – † 1979 Ljubljana

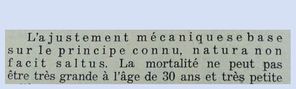
Ivo Lah was born on September 5, 1896, in Štrukljeva vas near Cerknica. He attended the folk school in Sv. Vid near Cerknica and continued his education at the classical grammar school in Ljubljana, from which he graduated in December 1915 with top marks. From 1918, he studied mathematics and physics, one semester in Vienna, then seven semesters in Zagreb, where he graduated in April 1925. He also studied business and transport sciences, which he completed with a state examination. In the First World War, he fought as a volunteer. In 1921, Ivo Lah was an assistant of mathematics at the Faculty of Forestry in Zagreb, and from 1921 to 1950 he worked at the Institute for Social and Insurance Affairs in Ljubljana, Zagreb and Belgrade, then at the Federal Statistical Office in Belgrade until December 1956, when he retired. He died on March 23, 1979, in Ljubljana. Lah's scientific bibliography comprises about 120 titles. In 1955, he published an identity in which the Lah numbers $L(n,k)$ appear.

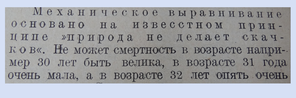




$L(n,k)$ were called *unsigned Lah numbers* by J. Riordan in his book *An Introduction to Combinatorial Analysis* (1958).

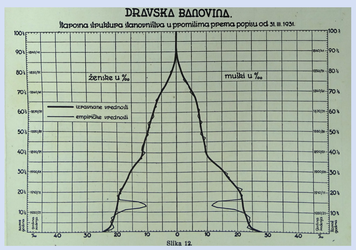
$$x^{\overline{n}} = x(x+1)(x+2)\dots(x+n-1),$$
$$x^{\underline{k}} = x(x-1)(x-2)\dots(x-k+1),$$
$$x^{\overline{n}} = \sum_{k=0}^{n} L(n,k)\,x^{\underline{k}} \quad \text{(Lah's identity)}.$$

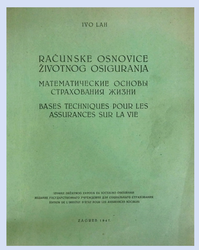

L'ajustement mécaniquesebase sur le principe connu, natura non facit saltus. La mortalité ne peut pas être très grande à l'âge de 30 ans et très petite


Механическое выравниваниеосновано на известномпринципе »природа не делаетскачков«. Не можетсмертность в возрастенапример 30 лет быть велика, в возрасте 31 годаочень мала, а в возрасте 32 лет опять очень

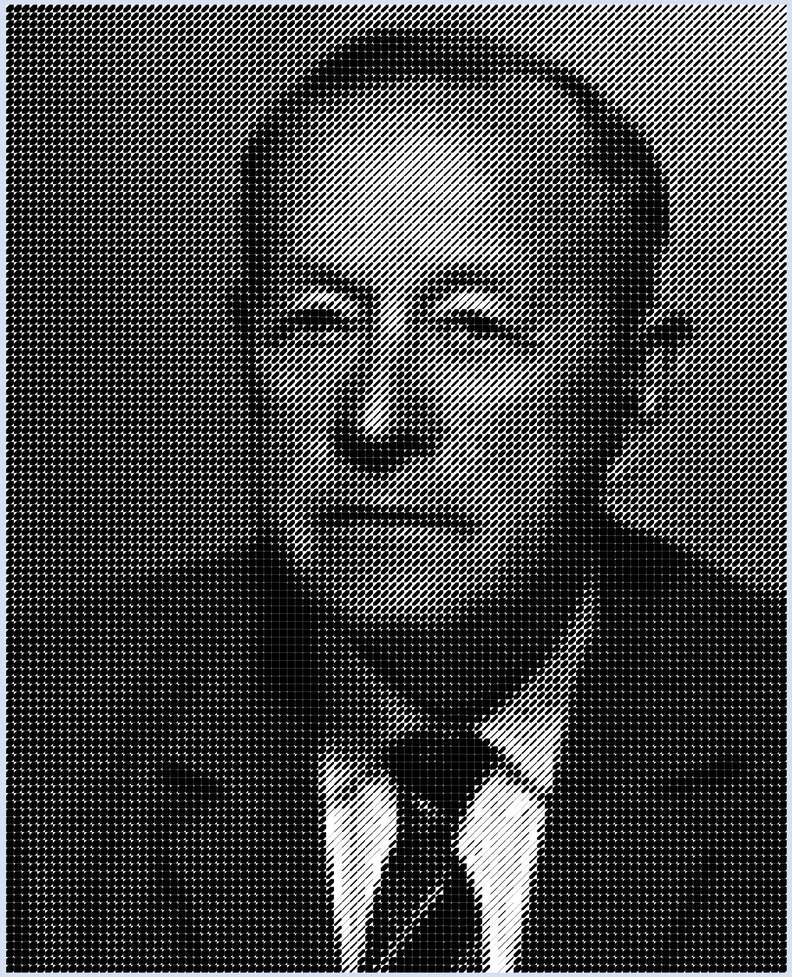
Štrukljeva vas: Lah's birthplace – Lahov rojstni kraj

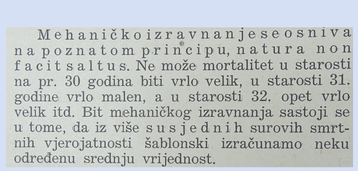
Ivo Lah se je rodil 5. septembra 1896 v Štrukljevi vasi pri Cerknici. Ljudsko šolo je obiskoval v Sv. Vidu pri Cerknici in v Ljubljani, kjer je šolanje nadaljeval na klasični gimnaziji, ki jo je decembra 1915 dokončal z najboljšimi ocenami. Od leta 1918 je študiral matematiko in fiziko, en semester na Dunaju, nato sedem semestrov v Zagrebu, kjer je končal študije aprila 1925. Študiral je tudi poslovne in prometne znanosti, ki jih je končal z državnim izpitom. V prvi svetovni vojni se je boril kot prostovoljec.
Ivo Lah je bil leta 1921 asistent za matematiko na Gozdarski fakulteti v Zagrebu, od 1921 do 1950 pa je delal na Zavodu za socialne in zavarovalne zadeve v Ljubljani, Zagrebu in Beogradu, nato na Federalnem statističnem uradu v Beogradu do decembra 1956, ko je bil upokojen. Umrl je 23. marca 1979 v Ljubljani. Lahova znanstvena bibliografija obsega okoli 120 naslovov. Leta 1955 je objavil enakost, v kateri nastopajo Lahova števila $L(n,k)$.

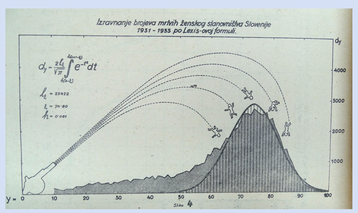




Lahovo najpomembnejše delo je trojezična knjiga *Računske osnovice životnog osiguranja*, ki je izšla 1947 v Zagrebu.




Mehaničkoizravnanjeseosniva na poznatomprincipu, natura non facitsaltus. Ne može mortalitet u starosti na pr. 30 godina biti vrlo velik, u starosti 31. godine vrlo malen, a u starosti 32. opet vrlo velik itd. Bit mehaničkog izravnanja sastoji se u tome, da iz više susjednih surovih smrtnih vjerojatnosti šablonski izračunamo neku određenu srednju vrijednost.



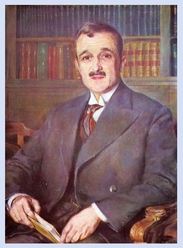
Natura non facit saltus were the words that angered the Yugoslav authorities.

Created by I. Hafner, M. Razpet, N. Razpet

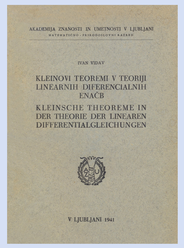
Ivan Vidav

⋆ 1918 Občine, Villa Opicina – † 2015 Ljubljana

He was a student at the grammar school in Maribor. In 1937 Vidav began to study mathematics at the University of Ljubljana. After a lecture in 1940, Plemelj mentioned to Vidav an open problem concerning homogeneous linear differential equations. Then, during the summer holidays of 1940, the 22 year old Vidav solved the problem. This first original scientific work of Vidav, in which he considered the so-called Fuchsian differential equation with five singular points, became the basis of his dissertation entitled *The theorems of Klein in the theory of linear differential equations*. Vidav was awarded his diploma and the Ph.D. degree (with Plemelj as advisor) in the same year, 1941.

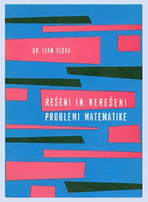


Josip Plemelj



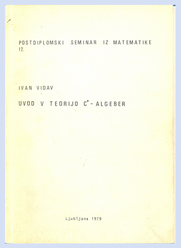
Vidav's doctoral thesis

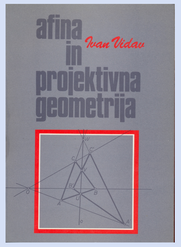
He studied in Rome in 1941-42. After WWII, in 1946, he became an assistant professor and, in 1953, a full professor at the University of Ljubljana. He wrote several textbooks for students of mathematics. He also wrote several little gems of books popularizing mathematics. Professor Vidav was a leading scientific and moral authority in Slovenian mathematics after WWII until his retirement. Throughout his active life he felt a responsibility for the development of mathematics at the University of Ljubljana and for the whole mathematical community in Slovenia. Because of his international success he was elected as a member of Slovenian Academy of Arts and Sciences in 1962. Some results are named after Vidav, for instance, the *Vidav-Palmer theorem*.



Občine, Villa Opicina: Vidav's birthplace – Vidavov rojstni kraj

Gimnazijo je obiskoval v Mariboru. Leta 1937 je začel študirati matematiko na ljubljanski univerzi. Leta 1940 je Plemelj omenil Vidavu neki problem v zvezi s homogenimi linearnimi diferencialnimi enačbami. Med poletnimi počitnicami 1940 je Vidav, star komaj 22 let, rešil problem. To je bilo njegovo prvo znanstveno delo, v katerem je obravnaval Fuchsovo diferencialno enačbo s petimi singularnimi točkami. Delo je postalo podlaga za disertacijo *Kleinovi teoremi v teoriji linearnih diferencialnih enačb*. Vidav je diplomiral in doktoriral pod Plemljevim mentorstvom istega leta, in sicer 1941.





Študiral je tudi v Rimu v letih 1941-42. Po 2. svetovni vojni, leta 1946, je postal docent in 1953 redni profesor na ljubljanski univerzi. Napisal je več učbenikov za študente matematike, pa tudi več knjižic, namenjenih popularizaciji matematike. Profesor Vidav je bil vodilna in moralna avtoriteta v slovenski matematiki po 2. svetovni vojni do svoje upokojitve. Bil je odgovoren za razvoj matematike na ljubljanski univerzi in v slovenski matematični skupnosti sploh. Zaradi svoje mednarodne uspešnosti je postal 1962 član Slovenske akademije znanosti in umetnosti. Nekateri rezultati so poimenovani po njem, na primer *Vidav-Palmerjev izrek*.

He was awarded of the highest academic honours by the University of Ljubljana and also some of the highest state awards in the area of scientific research and developmental activities.

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