

# JEWISH ACCOMPLISHMENTS / INVENTIONS / CONTRIBUTIONS

## AN INFORMAL LIST OF JEWISH INVENTIONS:

**REALLY PRACTICAL INVENTIONS:** Jeans, Lipstick, the Ballpoint Pen, Contraceptives, Instant Coffee, Television Remote Control, Traffic Lights, Scotchguard, the Flexistraw.

**REALLY BIG INVENTIONS:** The Atomic Bomb, the Thermonuclear Bomb, God, Genetic Engineering, the Nuclear Chain Reactor, Virtual Reality.

**CULTURAL CONTRIBUTIONS:** Hollywood, the Sit-Com, the Long Playing Record, Woodstock, Sound Movies, Videotape, Color Television, Instant Photography, Holography

**GAME CHANGERS:** Monotheism, Psychoanalysis, the Theory of Relativity, the Weekend (Shabbat)

**INVENTIONS BEGINNING WITH THE LETTER "C":** Capitalism, Communism, Circumcision, Cheesecake, Cafeterias

**NEVER BUY RETAIL:** Discount Stores, Pawn Shops, the Shopping Cart and the Ready-to-Wear Clothing Industry

**I FEEL BETTER ALREADY:** Prozac, Valium, The Polio Vaccine, Radiation, Chemotherapy, the Artificial Kidney Dialysis machine, the Defibrillator, the Cardiac Pacemaker, Vaccination against the deadly "Hepatitis B" virus, the Vaccinating Needle, Laser Technology

**CHAI TECH:** Google, the Wire Transmission Facsimilie (FAX) , the Microphone, the Gramophone, the Microprocessing Chip, Optical Fiber Cable, Laser, Cellular Technology, the Videotape Recorder

**HOW DID WE LIVE WITHOUT THESE?:** Drip Irrigation, Scale Model Electric Trains, the Pager, the Walkie-talkie, Refrigerated Railroad Car, High-vacuum Electron Tubes, the Incandescent Lamp, Kodachrome Film, the Blimp, the Adding Machine, Stainless Steel, Tapered Roller Bearings.

**A NOBLE PEOPLE:** At least 178 Jews have been awarded the Nobel Prize, accounting for 23% of all individual recipients worldwide between 1901 and 2008, and constituting 37% of all US recipients during the same period. In the scientific research fields of Chemistry, Economics, Medicine and Physics, the corresponding world and US percentages are 27% and 40%, respectively. (Jews currently make up approximately 0.25% of the world's population and 2% of the US population).

## **JEWISH ACCOMPLISHMENTS:**

Given that Jews comprise a mere 1/4 of 1% (13 million) of the world's population (6 billion) and that 99% of the world is non-Jewish, the following list of accomplishments by Jews is quite impressive.

Of the 660 Nobel prizes from 1901-1990, 160 have been won by Jews. Jews have won more Nobel prizes than any other ethnicity. They have won 40 times more than should be expected of them based upon population statistics.

### **Great Thinkers**

- Albert Einstein, the most famous scientist of the 20th century, proposed a groundbreaking theory of relativity (including his famous equation  $e=mc^2$ ). Einstein's work laid the foundation for much of modern physics and had a profound impact on everything from quantum theory to nuclear power and the atom bomb.
- Karl Marx, German philosopher, economist, and revolutionary, wrote *The Communist Manifesto* and *Das Kapital*, with the help of Friedrich Engels. These works greatly influenced modern socialism and all social sciences. Marx is considered one of the founders of economic history and sociology.
- Dr. Sigmund Freud, an Austrian physician, was the founder of psychoanalysis and father of psychiatry. He theorized that the symptoms of hysterical patients represent forgotten and unresolved infantile psychosexual conflicts. His psychoanalytic theories profoundly influenced 20th-century thought.

### **Science and Medicine**

- Dr. Jonas Salk created the first Polio Vaccine.
- Dr. Abraham Waksman coined the term antibiotics.
- Casimir Funk, a Polish Jew, pioneered a new field of medical research and coined the word "vitamins."
- Dr. Simon Baruch performed the first successful operation for appendicitis
- Dr. Paul "magic bullet" Ehrlich won the Nobel Prize in 1908 for curing syphilis.
- Dr. Abraham Jacobi is considered America's father of pediatrics.
- Dr. Albert Sabin developed the first oral polio vaccine.

### **Business and Finance**

- Haym Solomon and Isaac Moses are responsible for creating the first modern-banking institutions.
- Jews created the first department stores: The Altmans, Gimbels, Kaufmanns, Lazaruses, Magnins, Mays, and Strausses became leaders of major department stores.
- Julius Rosenwald revolutionized the way Americans purchased goods by improving Sears Roebuck's mail order merchandising.
- Hart, Schaffner, Marx, Kuppenheimer and Levi Strauss became household names in mens' clothing.
- Isadore & Nathan Straus - "Abraham & Straus," eventually became sole owners of Macy's, the world's largest department store, in 1896.
- The fortunes of English-Jewish financiers such as Isaac Goldsmid, Nathan Rothschild, David Salomons, and Moses Montefiore helped England become an empire.
- Armand Hammer (Arm & Hammer) was a physician and businessman who originated the largest trade between the U.S. and Russia.
- Louis Santanel was the financier who provided the funds for Columbus' voyage to America.
- Levi Strauss invented durable pants first used by Forty-niners during the Gold Rush. These "wonderful pants of Levi's" were made of a heavy blue denim material called "genes" in France. The pants he created, called levis or jeans, have become an emblem of the American West and an emissary of the Western lifestyle -- egalitarian, utilitarian, independent -- around the world.

### **Entertainment Industry**

- Samuel L. Goldwyn & Louis B. Mayer (MGM) produced the first full-length sound picture, "The Jazz Singer."

- European Jews are the founding fathers of all the Hollywood Studios.
- Adolph Zukor built the first theater used solely to show motion pictures.
- George and Ira Gershwin & Irving Berlin are three of the most prolific composers of the 20th century
- Harry Houdini (Weiss) is considered the father of Magic.
- Sherry Lansing of Paramount Pictures became the first woman president of a major Hollywood studio.
- Flo Ziegfeld of "Ziegfeld Follies" is the creator of American burlesque.
- Steven Spielberg is the most successful filmmaker since the advent of film.

### **Invention**

- Theodor Judah was chief architect and engineer for the American Transcontinental railroad.
- In 1918, Detroit, Max Goldberg opened the "first" commercial parking lot.
- In 1910, Louis Blaustein and his son opened the "first" gas station, eventually founding AMOCO OIL.
- In 1909, four Jews were among the 60 multi-cultural signers of the call to the National Action, which resulted in the creation of the NAACP.
- Emile Berliner developed the modern-day phonograph. The machine he patented was called the gramophone. Berliner made possible the modern record industry. His company was eventually absorbed by the Victor Talking Machine Company, now known as RCA.
- Jewish Louis B. Mayer (MGM) created the idea for the Oscar.

### **Art and Literature**

- Marc Chagall (born Segal, Russia) is one of the great 20th century painters.
- The famous poem of Jewish Poet Emma Lazarus - "give me your tired...your poor...your huddled masses," - appears as the inscription on the Statue Of Liberty.

## **TOP 44 ISRAEL INVENTIONS:**

One of Israel's sources of pride is the enormous number of inventions and innovations that have taken root on its soil over 63 years – despite challenges of geography, size and diplomacy. The ever-churning Israeli mind has brought us drip irrigation, the cherry tomato, the electric car grid, the Disk-on-Key and much more.

Through December at the **Bloomfield Science Museum** in Jerusalem, **44 indispensable Israeli inventions** are being displayed and demonstrated. Curator Varda Gur Ben-Sheetrit tells Israel21c that hundreds of ingenious inventions were considered for Inventions, Inc., which offers visitors a chance to learn more and try their own hand at coming up with something new.

She emphasizes that many other Israeli inventions are deserving of being included. "We were, of course, constrained by space limitations, and also not every company we invited to exhibit responded," she says.

Another feature of the exhibition is the Transparent Studio, where graduates of the **Bezalel Academy of Arts and Design** conduct a course on innovation in the area of light and lighting design. Visitors can observe their work-in-progress and share their ideas and suggestions with the designers.

Here, ISRAEL21c gives Israel's top 44 inventions highlighted at the exhibition, in no particular order.

1. **Given Imaging**, a world leader in developing and marketing patient-friendly solutions for visualizing and detecting disorders of the GI tract, is best known for its PillCam (aka capsule endoscopy), now the gold standard for intestinal visualization.

2. **Netafim** is a worldwide pioneer in smart drip and micro-irrigation, starting from the idea of Israeli engineer Simcha Blass for releasing water in controlled, slow drips to provide precise crop irrigation. The kibbutz-owned company operates in 112 countries with 13 factories throughout the world.

3. **Ormat Technologies** designs, develops, builds, owns, manufactures and operates geothermal power plants worldwide, supplying clean geothermal power in more than 20 countries.

4. **Pythagoras Solar** makes the world's first solar window, which combines energy efficiency, power generation and transparency. This transparent photovoltaic glass unit can be easily integrated into conventional building design and construction processes.

5. **Hazera Genetics**, a project of two professors at the Hebrew University Faculty of Agriculture, yielded the cherry tomato – a tasty salad fixing that ripens slowly and doesn't rot in shipment.

6. **BabySense** is a non-touch, no-radiation device designed to prevent crib death. Made by HiSense, the device monitors a baby's breathing and movements through the mattress during sleep. An auditory and visual alarm is activated if breathing ceases for more than 20 seconds or if breath rate slows to less than 10 breaths per minute.

7. **EpiLady**, the first electric hair remover (epilator), secured its leading position in the international beauty care market and since 1986 has sold almost 30 million units.

8. **3G Solar** pioneered a low-cost alternative to silicon that generates significantly more electricity than leading silicon-based PV solar modules at a lower cost per kilowatt hour.

9. **MobileEye** combines a tiny digital camera with sophisticated algorithms to help drivers navigate more safely. The steering system-linked device sounds an alert when a driver is about to change lanes inadvertently, warns of an impending forward collision and detects pedestrians. MobileEye has deals with GM, BMW and Volvo, among others.

10. **Leviathan Energy** innovated the Wind Tulip, a cost-effective, silent, vibration-free wind turbine designed as an aesthetic environmental sculpture, producing clean energy at high efficiency from any direction.

11. **Rav Bariach** introduced the steel security door that has become Israel's standard. Its geometric lock, whose cylinders extend from different points into the doorframe, is incorporated into doors selling on five continents.

12. **BriefCam** video-synopsis technology lets viewers rapidly review and index original full-length video footage by concurrently showing multiple objects and activities that actually occurred at different times. This technology drastically cuts the time and manpower involved in event tracking, forensics and evidence discovery.

13. **GridON** makes the Keeper, a three-phase fault current limiter developed at Bar-Ilan University. The device, which blocks current surges and limits the current for as long as required to clear the fault, won an Innovation Award from General Electric's Ecomagination Challenge and is of interest to major utilities companies around the world.

14. **Intel Israel** changed the face of the computing world with the 8088 processor (the "brain" of the first PC), MMX and Centrino mobile technology. Israeli engineers at Intel in the 1990s had to convince skeptical bosses to take a chance on MMX technology, an innovation designed to improve computer processing. It's now considered a milestone in the company's history.

15. **Disk-on-Key**, the ubiquitous little portable storage device made by **SanDisk**, was invented by Dov Moran as an upgraded version of disk and diskette technology through the use of flash memory and USB interface for connection to personal computers.

16. **TACount** real-time microbiology enables the detection and counting of harmful microorganisms in a matter of minutes, rather than the conventional method of cell culture that takes several hours to a few days. The technology applies to the fields of drinking and wastewater, pharmaceuticals and food and beverage production.

17. **Solaris Synergy** innovated an environmentally friendly and economically beneficial way to float solar panels on water instead of taking up valuable land, generating energy while protecting and limiting evaporation from reservoir surfaces.

18. **HydroSpin** is developing a unique internal pipe generator that supplies electricity for water monitoring and control systems in remote areas and sites without accessibility to electricity.

19. **The Volcani Research Center of the Ministry of Agriculture and Rural Development** aims to improve existing agricultural production systems and to introduce new products, processes and equipment. Basic and applied research is conducted at six institutes and in two regional research centers by more than 200 scientists and 300 engineers and technicians.

20. **Rosetta Green**, a 2010 spinoff of the agro-biotechnology division of Rosetta Genomics, develops improved plant traits for the agriculture and biofuel industries, using unique genes called microRNAs.

21. **Mazor Robotics' Spine Assist and other surgical robots** are transforming spine surgery from freehand procedures to highly accurate, state-of-the-art operations with less need for radiation.

22. The **optical heartbeat monitor** developed by Bar-Ilan University's Prof. Ze'ev Zalevsky is a revolutionary medical technology using a fast camera and small laser light source.

23. **Elya Recycling** developed and patented an innovative method for recycling plastic based on a specialized formulation of natural ingredients. Making the new raw material for handbags, reusable totes and lumber products requires 50 percent less energy than current recycling methods and 83% less energy than virgin manufacturing.

24. **Like-A-Fish** unique air supply systems extract air from water, freeing leisure and professional scuba divers, as well as submarines and underwater habitats, from air tanks.

25. Itamar Medical's **WatchPAT** is an FDA-approved portable diagnostic device for the follow-up treatment of sleep apnea in the patient's own bedroom, rather than at a sleep disorders clinic.

26. **Zenith Solar** developed a modular, easily scalable high-concentration photovoltaic system (HCPV). The core technology is based on a unique, proprietary optical design to extract the maximum energy with minimal real estate.

27. **AFC (Active Flow Control)** was developed at Tel Aviv University as an intelligent gas-air mixing system to replace all existing mixing technologies.

28. The **Space Imagery Intelligence (IMINT) unit of Elbit Systems** makes a "space camera," a compact, lightweight electro-optic observation system for government, commercial and scientific applications.

29. *Turbulence*, the world's **first hyper-narrative, interactive movie**, is also the name of the company developed by Prof. Nitzan Ben-Shaul of Tel Aviv University. The technology allows the viewer to choose the direction of the film's plot by pressing buttons on the PC, Mac or iPad at various moments in the action.

30. **Decell Technologies** is a global leader in providing real-time road traffic information based on monitoring the location and movement of phones and GPS devices. Swift-i Traffic, Decell's premium product, is incorporated in leading navigation systems, fleet management services, mapping operations and media channels in several countries.

31. **NDS VideoGuard** technology is the pay-TV industry's advanced suite of conditional access (CA) solutions. It protects branded service from piracy and ensures that consumers will have the choice and flexibility they demand in broadcast and on-demand content.

32. **PrimeSense** revolutionizes interaction with digital devices by allowing them to "see" in three dimensions and transfer control from remote controls and joysticks to hands and body. It is the leading business provider of low-cost, high-performance 3D machine vision technologies for the consumer market.

33. **Takadu** provides monitoring software to leading water utilities worldwide. The product offers real-time detection and control over network events such as leaks, bursts, zone breaches and inefficiencies.

34. Hewlett Packard (HP)'s **Indigo digital printing presses** for general commercial printing, direct mail, photos and photobooks, publications, labels, business cards, flexible packaging and folding cartons print without films and plates, allowing for personalized short runs and changing text and images without stopping the press.

35. Cubital's **solid rapid prototyping machines** craft 3D models of engineering parts directly from designs on a computer screen. They're used in the automotive, aerospace, consumer products and medical industries, as well as engineering firms and academic and research institutions.

36. The **Zomet Institute** in Jerusalem is a non-profit, public research institute where rabbis, researchers and engineers devise practical solutions for modern life without violating Sabbath restrictions on the use of electricity. Zomet technology is behind metal detectors, security jeeps, elevators, electric wheelchairs and coffee machines that can be used on Shabbat, as well as solutions requested by the Israeli ministries of health and defense, Ben-Gurion Airport, Elite Foods, Tnuva Dairies, Israeli Channel 10 Television and others.

37. The **EarlySense** continuous monitoring solution allows hospital nurses to watch and record patients' heart rate, respiration and movement remotely through a contact-free sensor under the mattress. The system's built-in tools include a wide range of reports on the status of patients, including alerts for falls and bedsores prevention.

38. **TourEngine** significantly reduces fuel consumption and harmful emissions by common engines through a sophisticated thermal management strategy. It can also be easily integrated with future hybrid engines, further improving their efficiency and environment-friendly attributes.

39. The superconducting fault current limiter (FCL), designed for limiting short currents, comes out of a \$2 million project developed over two years by RICOR Cryogenics and Vacuum Systems with the **Institute of Superconductivity at Bar-Ilan University**.

40. **Heliofocus** led an industry trend to provide solar-energy boosting for existing coal or gas power plants, reducing carbon emissions and overall costs.

41. **Transbiodiesel** makes enzyme-based catalysts (biocatalysts) used in the production of biodiesel.

42. **SolarEdge** makes a module that optimizes every link in the solar PV chain, maximizing energy production while monitoring constantly to detect faults and prevent theft.

43. The **3D tethered particle motion system** developed by three professors at Bar-Ilan allows for three-dimensional tracking of critical protein-DNA and protein-RNA cell interactions in the body.

44. **Panoramic Power** provides a current monitor solution that enables enterprises and organizations to reduce their operational and energy expenses using a breakthrough power flow visibility platform.

## More Formal List of Jewish Inventors:

### A

- Robert Adler - Television Remote Control (1950)
- Ruth Arnon - Israel biochemist and co-developer of the multiple sclerosis drug Copaxone
- Selig Percy Amoils - South African Ophthalmologist and biomedical engineer
- Zhores Alferov - the heterotransistor. Winner of 2000 Nobel Prize in Physics.
- Hermann Aron- German engineer- electric meter.
- Chaim Aronson-Lithuanian inventor and memoirist.
- Hertha Marks Ayrton- English mathematician and engineer- first woman to win Hughes Medal for her work on electric arcs and ripples in sand and water.

### B

- Donát Bánki - carburetor (1893)
- László Bíró - Ballpoint Pen (1938)
- Emile Berliner – gramophone
- Samuel E Blum - LASIK eye surgery
- Ralph H. Baer – father of the Video Games
- Bernhard Baron – cigarette making machine
- Felix Berezin
- Eli Biham- differential cryptoanalysis.
- Simcha Blass – new water drip system
- Charles K. Bliss- pictorial symbolic language
- Baruch Samuel Blumberg - American doctor and co-recipient of the 1976 Nobel Prize in Physiology or Medicine (with Daniel Carleton Gajdusek)
- Dan Boneh - applied cryptography and computer security

### C

- Stanley N. Cohen - Genetic Engineering (1973)
- Claude Cohen-Tannoudji - research in methods of laser cooling and trapping atoms
- Fred Cohen - inventor of computer virus defense techniques
- Stanley Norman Cohen - National Medal of Science in 1988.
- Frank Benjamin Colten- chemist- synthesized norethynodrel.

### D

- **Carl Djerassi** - chemist, novelist, and playwright best known for his contribution to the development of the first oral contraceptive pill (OCP). He is considered "The father of The Pill".

## E

- **Albert Einstein, Nobel Laureate in Physics, 1921** - theoretical physicist who developed the general theory of relativity, effecting a revolution in physics.
- Gertrude Elion - anti-leukaemia, gout, meningitis and herpes drugs
- **Paul Ehrlich, Nobel Laureate in Physiology or Medicine, 1908** - hematologist & immunologist; noted for curing syphilis and for his research in autoimmunity, chemotherapy & immunotherapy.
- **Arthur Eichengrun**
- **Paul Eisler**

## F

- **Lee Felsenstein**
- **Aron Fish** - businessman
- **Max Fleischer**
- **Joseph Friedman**
- **Julius Fromm**
- **Alexander Frumkin**

## G

- **Dennis Gabor** - Holography (1948)- Nobel Prize in Physics
- **Uziel Gal**
- **Yisrael Galil**
- **Samuel Genensky**
- **Joseph Gerber**
- **Gersonides**
- **David Gestetner**
- Charles Ginsberg - Videotape (early 1950's)
- Donald A. Glaser- Nobel Prize in Physics in 1960 for the invention of the Bubble Chamber.
- Leopold Godowsky, Jr.- color photography.
- **Emanuel Goldberg**
- **Ken Goldberg**
- **Sylvan Goldman** - shopping cart in 1937. Awarded a patent on April 9, 1940
- Peter Carl Goldmark - Long Playing Record (1948)
- **Lewis Gompertz**
- **Bernard Marshall Gordon**
- **Gordon Gould** - Laser (1958)
- **Dahlia Gredinger**
- **Mikhail Gurevich** aircraft designer

## H

- **Fritz Haber, Nobel Laureate in Chemistry, 1918** (1868 - 1934) invented the industrial synthesis of ammonia, important for fertilizers and explosives. He has been described as the "father of chemical warfare".
- **Waldemar Mordecai Wolff Haffkine, CIE (Мордехай-Вольф Хавкин)** (1860 - 1930), Lausanne, Switzerland) Recognized as the first microbiologist who developed and used vaccines against cholera and bubonic plague. Was named "a saviour of humanity".
- **Ruth Handler**
- **David Harel**

## I

- **Gavriel Iddan**
- **Gavrili Ilizarov**

- **Hanon Izakson**

## J

- **Mary the Jewess** (anywhere bet. I - III CE) She is attributed with the invention of several chemical apparatus and is considered to be the first non fictitious alchemist in the Western world.

## K

- **Albert Kahn** - architect
- **Philippe Kahn**
- **Victor Kaplan**
- **Theodore von Karman**
- **Ronald A Katz**
- **Charles Kelman**
- **Aaron Klug** (b. 1926) Nobel Prize in 1982 for the development of crystallographic electron microscopy.
- **Hedwig Kohn**
- **Rudolph Kompfner**
- **Arthus Korn** (1870 - 1945) Physicist, mathematician and inventor. He was involved in the development of the fax machine, specifically the transmission of photographs or telephotography.
- Raymond Kurzweil- Reading System for the blind.

## L

- **Hedy Lamarr** - film actress, co-invented early form of spread spectrum communications technology, a key to modern wireless communication.
- Maurice Levy - Lipstick (1915)
- Edwin Herbert Land - Instant Photography (1947)
- Jason Lanier - Virtual Reality (1989)
- **Lev Landau, Nobel Laureate in Physics, 1962** - theoretical physicist who made fundamental contributions to many areas of theoretical physics e.g. density matrix method in quantum mechanics, the quantum mechanical theory of diamagnetism, the theory of superfluidity, the theory of second order phase transitions, the theory of superconductivity, the Landau damping in plasma physics, the Landau pole in quantum electrodynamics, and the two-component theory of neutrinos.
- **Bonet de Lattes**
- **Esther Lederberg**
- **Leon M Lederman**
- **Abraham Lempel**
- **David Levy** - inventor
- **Julius Edgar Lilienfeld**
- **Gabriel Lippmann**
- **Lenny Lipton**
- **Sol Leshinsky**
- **Otto Loewi**

## M

- Theodore Maiman - co-inventor of the Laser
- Leopold Mannes- color photography
- **Louis Marx**
- **Zeppo Marx**
- **Melanie Mayron**
- **Stanley Mazor**
- **Mordecai Meirowitz**
- **Erich Mendelsohn**

- **Viktor Meyer**
- **Albert Abraham Michelson**
- **Morris Michtom**
- **Mikhail Mil**
- **Hinda Miller**
- Irving Millman- vaccine against viral hepatitis
- **Cesar Milstein**
- **Michel Mirowski**
- Henri Moissan- French chemist who won a Nobel Prize in 1906 for the invention of the electric furnace that is named after him.
- **Georges Montefiore-Levi**
- **Dov Moran**
- Morton Mower- defibrillator

## N

- **Frank Nabarro**
- **Abraham Nemeth**
- **Pedro Nunes**

## O

- **J. Robert Oppenheimer** - a theoretical physicist. He is often called the "father of the atomic bomb".
- **Stanford Ovshinsky** - a prolific American inventor and scientist who had been granted well over 400 patents over fifty years, mostly in the areas of energy and information.

## P Q

- **Gregory Pincus** - contraceptives (early 1950's)

## R

- **Isidor Isaac Rabi**- 1944 Nobel Prize for discovery of nuclear magnetic resonance.
- **Michael Rabin**
- Jacob Rabinow- letter-sorting machine, optical character recognition, magnetic disk memory.
- **William Rankine**
- Robert H.Rines- microwave scanning system, high-res radar and sonar
- **Francois de Rivaz**
- Harold A. Rosen- synchronous communications satellite
- **Samuel Ruben**
- Benjamin A. Rubin- vaccination needle used for smallpox
- **Reinhold Rudenberg**

## S

- **Levi Strauss** (1829 – 1902) founded the first company to manufacture blue jeans, Levi Strauss & Co., in 1853 in San Francisco, California.
- Fran's Sacher - Austrian born confectioner of the world famous chocolate cake "Sachertorte"
- **William Salcer** - designed tanks and armoured cars, jet engines for Israeli Air Force. Held 12 patents.
- **Jonas Salk**
- **David Stern-Salomons**
- Arthur L Schawlow- laser, Nobel Prize 1981
- **Morris Schwartz**
- **David Schwartz** - aviation inventor

- **Adi Shamir**
- **Isaac Shoenberg**
- **Hayyim Slonimski**
- **Sass Somekh**
- **Abraham Staffel**
- **Lina Stern** - best known for pioneering work on blood-brain barrier, hemato-encephalic barrier 1921.
- Leo H. Sternbach- Valium
- **Leó Szilárd** - chain reaction (1933)
- **Joseph Szydlowski**

## T

- **Edward Teller** et al - Thermonuclear Bomb (1952)
- **Alexander Tetelbaum**
- **Bruno Touschek**
- **Joseph Tykociner**

## U V

- **Stanislaw Ulam**

## W

- **Selman Waksman** - Streptomycin
- **Gil Weinberg**
- **Chaim Weizmann, First President of Israel** - He was also a chemist who developed the ABE-process, which produces acetone through bacterial fermentation, one of the early modern biotechnological processes.
- **Richard Willstätter, Nobel Laureate in Chemistry, 1915** - organic chemist whose determined of the structure of chlorophyll and other plant pigments, and co-invented paper chromatography.
- **Ricardo Wolf** - invented the process of recovering iron from smelting process residue. He established the Wolf Foundation financing The Wolf Prize awarded in six fields: **Agriculture, Chemistry, Mathematics, Medicine, Physics**, and an **Art**.

## X Y Z

- Rosalyn Sussman Yalow - radioimmunoassay (RIA) technique
- **Ludwik Lejzer Zamenhof** - the creator of Esperanto, the most successful constructed language designed for international communication.
- Abraham Zacuto - astronomer, astrologer, mathematician and historian who served as Royal Astronomer in the 15th century to King John II of Portugal. The crater Zagut on the Moon is named after him.
- Moshe Zakai - the study of the theory of stochastic processes and its application to information and control problems; namely, problems of noise in communication radar and control systems.
- Zeev Zalevsky - best known for his work on Super Resolution.
- Alexander Zalmanov - a method of capillaries restoration with special Turpentine bath
- Yakov Borisovich Zel'dovich - played an important role in the development of Soviet nuclear and thermonuclear weapons
- Abraham Zelmanov - He first constructed, in 1944, the complete mathematical method to calculate physical observable quantities in the General Theory of Relativity (the theory of chronometric invariants). Applying the mathematical apparatus, in the 1940s, he established the basics of the theory of inhomogeneous anisotropic universe, where he determined specific kinds of all cosmological models — scenarios of evolution — which could be theoretically conceivable for a truly inhomogeneous and anisotropic Universe in the framework of Einstein's theory.
- Jacob Ziv - Israeli computer scientist who, along with Abraham Lempel, developed the LZ family of lossless data compression algorithms
- Paul Maurice Zoll - Defibrillator/Cardiac Pacemaker (1952)

