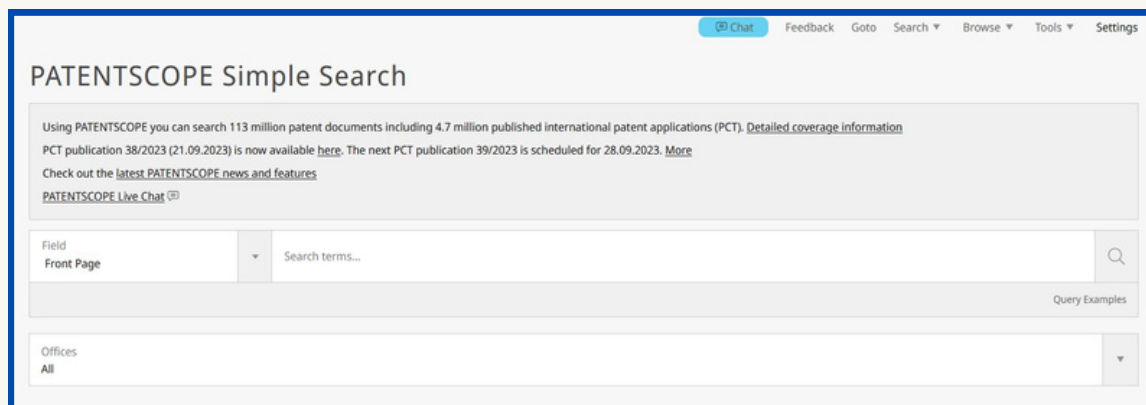



PATENTSCOPE exercise booklet


NOVEMBER 2023


Greetings!





Introducing the All-New PATENTSCOPE Exercise Booklet!

 Are you ready to take your PATENTSCOPE skills to the next level? Dive into our comprehensive exercise booklet, meticulously designed to empower users of all levels with hands-on experience in navigating the world of patent information.

 Inside, you'll discover a diverse range of exercises tailored to enhance your proficiency in using PATENTSCOPE effectively. Whether you're a novice explorer or a seasoned pro, our exercises cater to every learning curve.

 But remember, in the dynamic world of patents, there's often more than one way to crack the code. That's why, at the end of each exercise, we provide possible solutions to guide you. Keep in mind, patent landscapes can evolve, and flexibility is key.

 Your journey through the patent universe is about to get even more exciting! Have questions or seeking more information? Reach out to our dedicated PATENTSCOPE team at patentscope@wipo.int. Stay curious and keep innovating! 

1.Chinese patent application and translation



Wu Wenhai, Miao Lei, Lang Yue, Hu Chen, Liu Zexin and Zhang Qin, of Huawei Technologies Co Ltd invented a “Detection signal delay method, detection device and encoder”. A Chinese patent application was published on 28th December 2011.

The priority document is a PCT document filed in the Chinese language, there are two other documents in the patent family also published in the Chinese language.

A. How could you obtain translations into the English and Korean languages without processing the original Chinese texts in a computer machine translation. How would you obtain other language versions?

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2. Breeding tomatoes



On 19th August 1999 a patent for a “Method for breeding tomatoes having reduced water content” was filed at the Israel Patent Office, by the Ministry of Agriculture & Rural Development. In due course a PCT application was filed.

- A. What was the PCT publication number?
- B. In which countries did the PCT application enter the national phase?
- C. Which other family members are there?
- D. What was the fate of the European Patent family member?

3 . Immunowork



Immunowork is a small pharma company and as yet only has a small patent portfolio. The portfolio is associated with autoimmune diseases. The provisional priority filing was in the USA

A. Find the PCT family member

B. Find the other family members.

C. What is the easiest way of obtaining a Japanese language version of the English language description?

4. Nobel prize blue laser



The Nobel Prize in Physics 2014 was awarded jointly to Isamu Akasaki, Hiroshi Amano and Shuji Nakamura "for the invention of efficient blue light-emitting diodes which has enabled bright and energy-saving white light sources"

The Nobel Physics Prize 2014 press release gives information on the Laureates' respective affiliations.

<https://www.nobelprize.org/prizes/physics/2014/press-release/>

- A. Find patent applications in the field of lasers for each of these Nobel Prize winners individually and together (co-inventorship)
- B. Refine your search results to patent applications for blue lasers

5. NOTPLA



Notpla grabbed the headlines in December 2022 as one of the Earthshot prizewinners. NotPla is a company making plastic substitute materials out of seaweed for food packaging, mineral water and soft drinks.

<https://earthshotprize.org/winners-finalists/notpla/>

<https://www.youtube.com/watch?v=EzlpCjh8nBU>

- A. Find patent applications filed in the name of NotPla (applicant)
- B. Who are the inventors named in these applications?
- C. List the patent applications you found

These inventors were associated with another company before they were connected with NotPla.

- D. What is the name of that earlier company?
- E. This company filed a PCT Application – what is the publication number?

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6. Nobel prize CRISPr



The Nobel Prize in Chemistry 2020 was awarded jointly to Emmanuelle Charpentier and Jennifer A. Doudna "for the development of a method for genome editing"

<https://www.nobelprize.org/prizes/chemistry/2020/summary/>

This method is known as CRISPr (Clustered Randomly Interspaced Short Palindromic repeats). This technique has grown rapidly from scientific observation to a mainstream technology with applications in medicine, agriculture and biotechnology.

- A. Find patents where Emmanuelle Charpentier is cited as inventor
- B. Find patents where Jennifer A. Doudna is cited as inventor
- C. Are there any patents with them both cited as co-inventors?
- D. Which patents do you think are related to their Nobel Prize?

7. Hoverboard



In the 1989 film *Back To The Future*, hero Marty McFly is chased on a hoverboard by the Bad Guys also on hoverboards. In 1989, hoverboards on the silver screen were created by actors on wires (which were digitally erased in post-production) and strapping the hoverboard prop to their feet. The actors had to pretend to be standing on the board, when in fact it was they who were holding the board up. As early as the late 1990's the hoverboard became a reality with the use of aircushion technology as in hovercraft.

A. Find the Canadian patent application filed in 1996 by Michele Palladino for a hoverboard.

Another effective technique is where magnets in the hoverboard are repelled by magnets buried in the ground beneath, but it was not until the 21st century (very *Back to the Future*) that this technology took off!

B. Find patent applications for hoverboards which float on magnetic fields

C. Sometimes the inventor's imagination takes over and leads into the realms of fantasy and fairy tale. Find the Australian patent application by Ameri Dion published in February 2022.

D. Despite the title, what is the real power driving this invention?

8. Parasitic diseases

The 2015 Nobel Prize in Physiology or Medicine was awarded with one half jointly to William C. Campbell and Satoshi Ōmura for their discoveries concerning a novel therapy against infections caused by roundworm parasites and the other half to Tu Youyou for her discoveries concerning a novel therapy against Malaria:

<https://www.nobelprize.org/prizes/medicine/2015/press-release/>

A. Find patent applications with William C. Campbell as inventor and MERCK as applicant

B. Find patent applications with Satoshi Ōmura as inventor in the field of antiparasitic drugs, especially anthelmintics

Campbell and Omura were active in developing avermectins and from there to ivermectin.

C. Find the structure of ivermectin.

D. What is the InChi Key?

Tu Youyou was also active in the field of antiparasitic drugs especially antimalarials.

E. Find patent applications with Tu Youyou as inventor Tu youyou isolated a naturally occurring physiologically active substance artemisinin from the sweet wormwood plant. Artemisinin is effective in the treatment of malaria.

F. Find the chemical structure of artemisinin.

G. What is the InChiKey?



9. Outboard motor

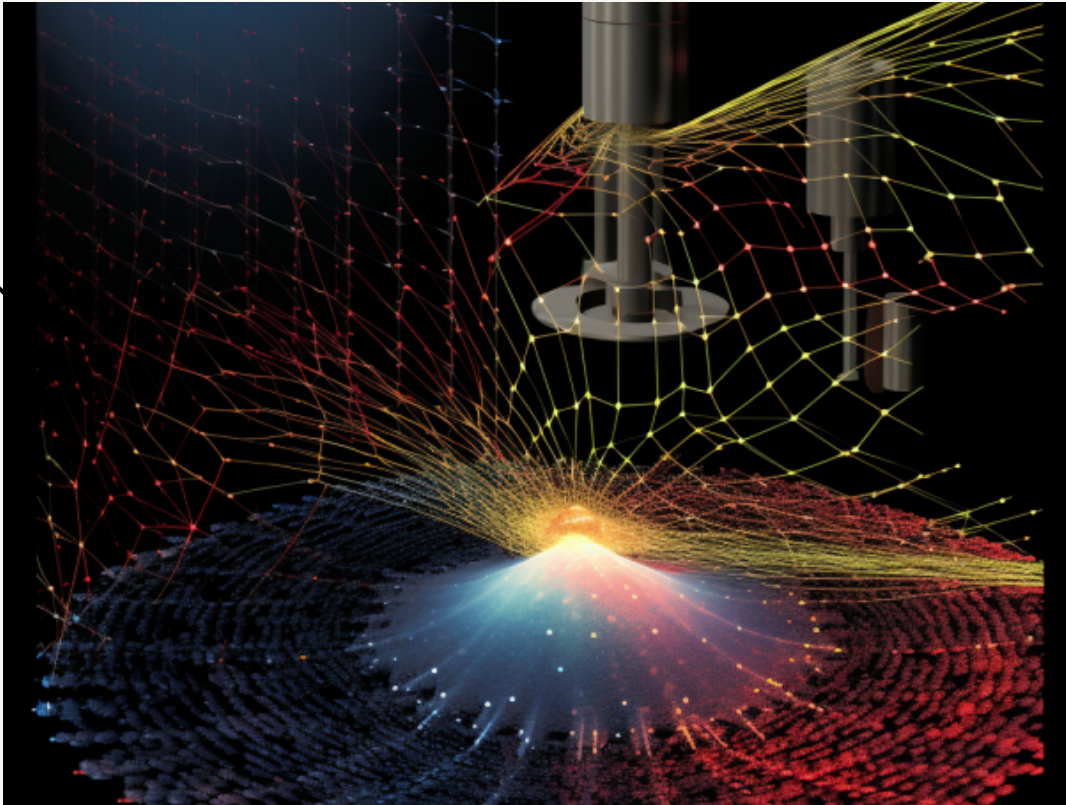


Conventional internal combustion engine outboard motors have certain disadvantages such as pollution, weight, corrosion, reliability and durability.

A small Slovenian company has invented and designed an outboard motor powered by electricity in which all of the components of the device are integrated into one housing: controls, power supply, motor, propeller, rudder, mounting bracket etc. The product is protected by patent(s) utility models and registered designs.

- A. Find the Slovenian priority document published in the Slovenian language. How would you obtain a French language version?
- B. Find the PCT application associated with this invention
- C. What is the name of the small Slovenian company?

10. WEIGHING BIOMOLECULES WITH LIGHT



One of the challenges in the biosciences is the measurement of the mass of large molecules such as lipids, proteins, steroids and other biomarkers. Some methods using ionisation followed by mass spectrometry can destroy the analyte molecules before mass analysis is possible. Light scattering offers a non-destructive approach and a technique based on interferometric scattering (ISCAT) microscopy can be adapted to measure the mass of large molecules in solution or suspension for example.

- A. Find patent applications for ISCAT microscopy inventions
- B. Find patent applications for ISCAT microscopy applied to the measurement of molecular mass – what is the name of this applied technology
- C. Find the small British company co-applicant with an Oxford University Institution. List the patent applications

11. SUSTAINABLE CAST PRODUCTS



The Naturescast patent (as submitted in PCT application PCT/PH2003/000016, PATENTSCOPE)

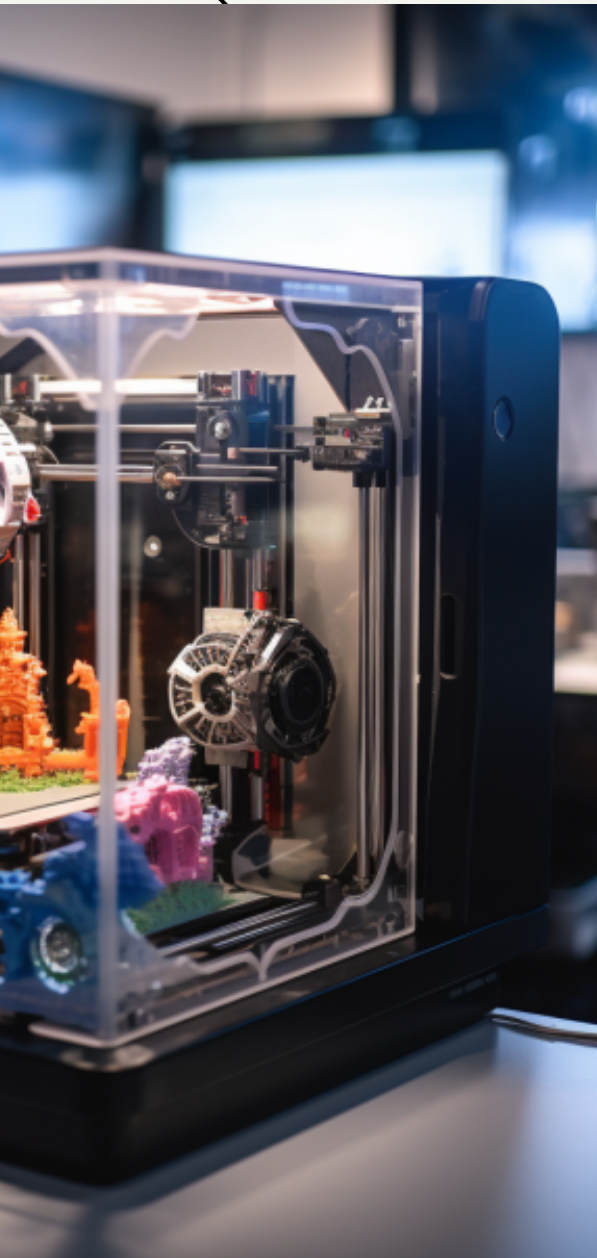
In 1993, the husband and wife team of Pedro and Catherine Delantar were making hand carved natural stone products in Cebu province, Philippines. Their products featured intricate designs inspired by ancient Greek art and were mostly made with Mactan stone, an indigenous, off-white fossilized stone. The Delantars wanted to expand their production capacity, but this was only possible using a simulated cast Mactan-like stone, that enabled mass production. They also wanted to extend the range and sustainability of the materials used and the resulting products. Innovations extended to recycling the Earth's natural agro-forest waste (dead bark, shrubs, fallen twigs and leaves) to produce a diverse line of hand crafted home furnishing products.

In 1996, they formed Nature's Legacy Eximport, Inc. (Nature's Legacy) with two partners. National trademarks for the company name "Nature's Legacy" and for the product and material "Naturescast" have been filed.

<https://www.wipo.int/ipadvantage/en/details.jsp?id=2576>

A. Find the relevant patent applications

12. 4D PRINTING



Four-dimensional (4D) printing is concerned with 3D printed objects that can self-assemble or reshape themselves with time. 4D printed products can change shape, colour, or size to suit particular applications after first being made by conventional additive manufacturing (AM).

It involves creating objects with special multi-material components which change in a controlled way either spontaneously or after responding to external stimuli. The significant difference between 3D and 4D printing is the time dependency of the spontaneous or stimulated change of shape size or colour. As in relativity theory, time is the fourth dimension.

Read more about 4D printing here and watch the video

<https://builtin.com/3d-printing/4d-printing>

4D printed components find applications where the environments may be restricted or delicate or sensitive, or where manual intervention is not possible. In medicine and healthcare 4D printing could be used to create drug capsules that release medicine at the first sign of an infection, using an increase in body temperature as a trigger

4D printing technology could have medical applications such as stents that expand after being exposed to heat or prostheses that deform dynamically to fit contours of internal or external organs or to musculoskeletal structures or scaffolds on which to grow synthetic organs for transplant.

- A. To begin with, suggest synonyms for 4D printing materials
- B. Find the main IPC group for additive manufacturing
- C. Find the main IPC group for implants, prostheses etc.
- D. Combine your results to find patent applications for different medical products produced by 4D printing.
- E. Stratasy is a company working with MIT to produce 3D precursor shapes which can morph into other shapes. The leading exponent is a TED fellow. Can you find some of the relevant patent applications

13 . SONOCHEMISTRY

Sound waves and, in particular, high frequency sound waves (ultrasound) can be applied to cause chemical and physical changes and processes in materials. The results are often unique and cannot be produced by other methods.

Sonochemistry is the use of ultrasound to enhance or alter chemical reactions.

Sonochemistry in the true sense of the term occurs when ultrasound induces “true” chemical effects on the reaction system, such as forming free radicals which accelerate the reaction. However, ultrasound may have other mechanical effects on the reaction, such as increasing the surface area between the reactants, accelerating dissolution, and/or renewing the surface of a solid reactant or catalyst[i]

- A. Find the most appropriate IPC classification symbols which cover the field of sonochemistry processes and equipment
 - B. Use literature references to identify the most suitable keywords and synonyms which describe sonochemistry.
 - C. Find PCT patent applications associated with the synthesis of nanometre scale particulate material.
 - D. Professor K. Suslick is an active inventor in the fields of sonochemistry and biotechnology. Can you find any of his patent applications corresponding to the IPC classes or keywords you identified in A. and B. above?
- Professor Suslick has worked on both sides of the Atlantic Ocean, and he uses slightly different forms of his name depending on the institute he is working in.
- E. Which countries has he mainly been working in?
 - F. Which academic institutes has he mainly been working in?
 - G. Which different forms of his name appear as inventor?
- H. Find other patents with Prof. Suslick as inventor

It seems that Prof. Suslick’s interests lie not only in the applications of sonochemistry but in many other fields. Under what other IPC classifications are his patent applications filed?

1. Sonochemistry: Science and Engineering L. H. Thompson and L. K. Doraiswamy Industrial & Engineering Chemistry Research 1999 38 (4), 1215-1249
2. <https://en.wikipedia.org/wiki/Sonochemistry>
3. https://en.wikipedia.org/wiki/Sonochemical_synthesis

14. FLOOD PREDICTION



Recent years have shown that the frequency and intensity of natural disasters are increasing. Wild fires, droughts, extremely cold weather and flooding often hit the headlines these days. Authorities are left to mitigate disaster situations after the fact. In the case of flooding, especially in the built environment, authorities would like to have advance warning of a flood scenario to be able to take preventive action before a flood situation arises. A conceptual method would be to use existing, historical data in the form of rainfall and run-off behaviour of a particular location, and combine this with predictive, rainfall and weather forecast data for the same location in a computer model.

- A. Find the most appropriate IPC classes associated with weather, climate and rainfall.
- B. Find the most appropriate IPC classes associated with rainfall measurement
- C. Find the most appropriate IPC classes associated with computer predictions
- D. Find the most appropriate IPC classes associated with flood management
- E. Use appropriate keywords to find a range of relevant patents

15. SELF HEALING CEMENT



If not treated promptly cracks in reinforced concrete can lead to catastrophic failures as water corrodes the reinforcing rods and the cement matrix spalls.

A Dutch researcher from Delft has invented a healing agent for cement, or concrete material which self - heals small cracks in the material before they can develop into larger ones. The invention lies in the inclusion of bacteria-loaded particles as a healing agent in the cement matrix. These particles also contain calcium esters. If a crack develops, water enters the material or the structure and activates the bacteria-loaded particles, the bacteria consume the nutrients and excrete calcium carbonate - limestone- which fills the cracks in this “biocement”.

- A. Find patent applications for this technology
- B. What are the patent family members?

16. FLIGHT SIMULATOR



Professional aircraft pilots have to be trained to a very high standard obviously for reasons of safety and for passenger reassurance.

Pilot training programs are extensive and expensive. Before trainee pilots can take to the air, practical training takes place on the ground often in highly complex and expensive simulators. Simulator training time is at a premium, not only for new, trainee pilots but also for the compulsory refresher training required for established qualified pilots.

A solution to provide shorter, less expensive simulator training only for the early stages of training of new pilots is the use of virtual reality VR headsets instead of the capital equipment, ground-based simulators.

- A. Find patents which combine flight simulator technologies with virtual reality
- B. The ideal solution would be a VR set up where the trainee pilot wears a head set