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Fakulta strojní

Patent Analysis Using SW Patent Inspiration

Workshop for PhD Students of FT TUL

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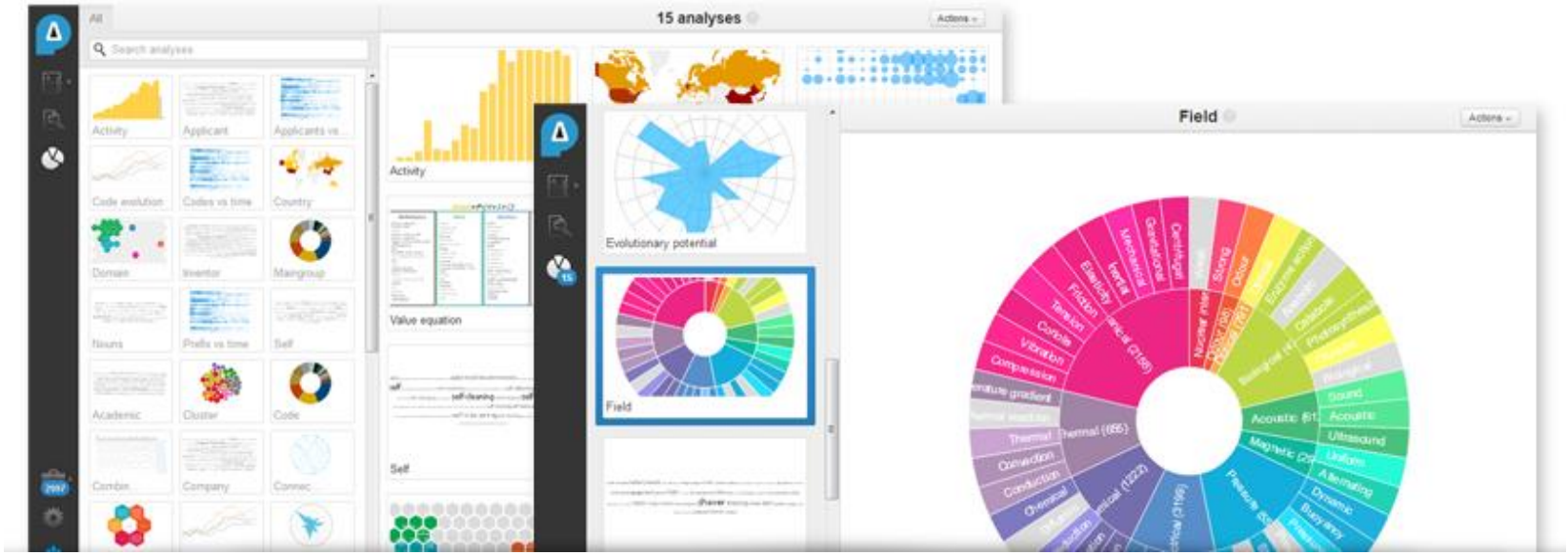
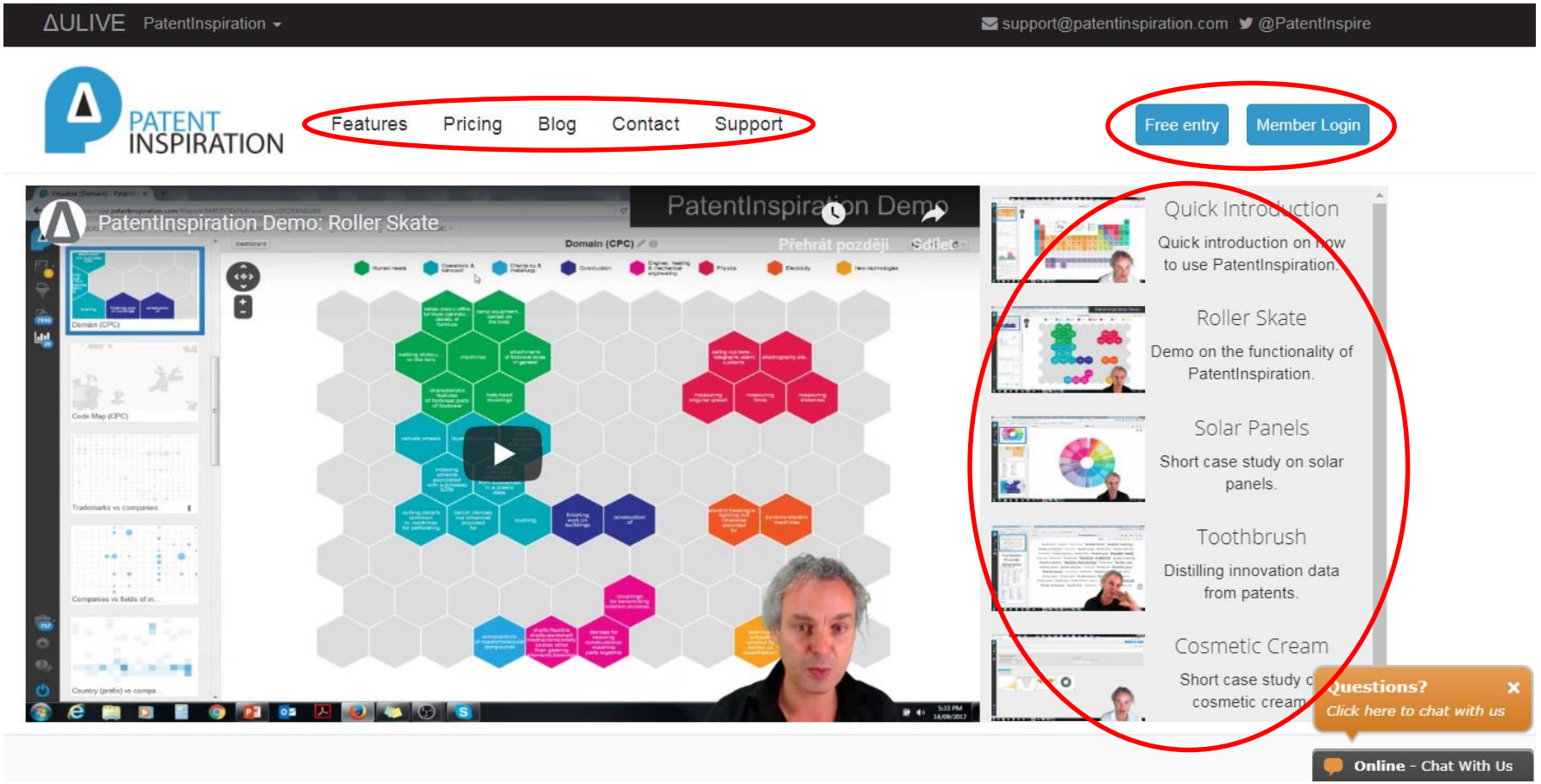
12/11/2019

Why do we do a patent review?

- Mapping of the **state of the art**
- Checking the **novelty of** your **own solution**
- **Inspiration** in innovation process during designing own solutions by decomposition / analysis of existing solutions

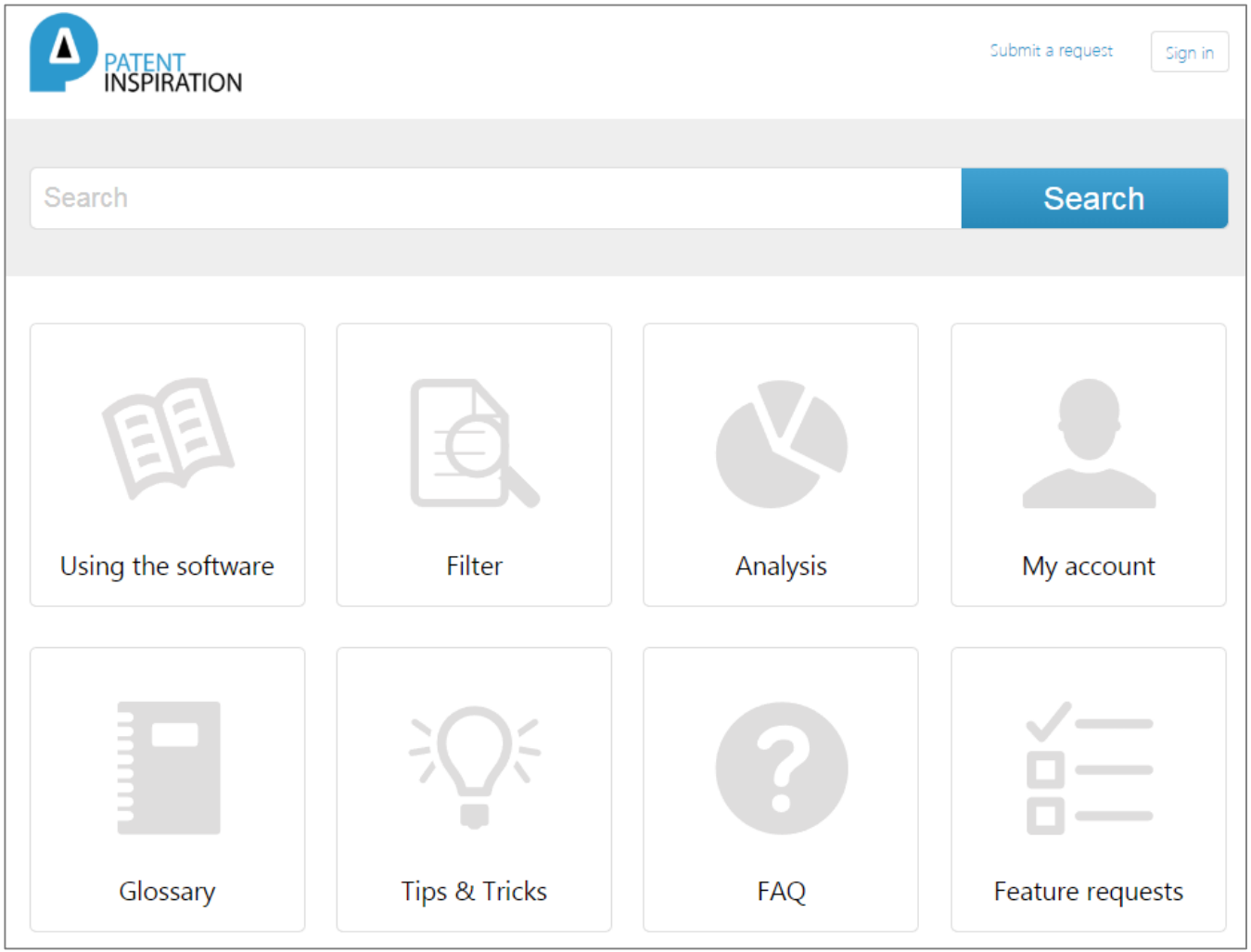


SW, videos, entry, licence, support



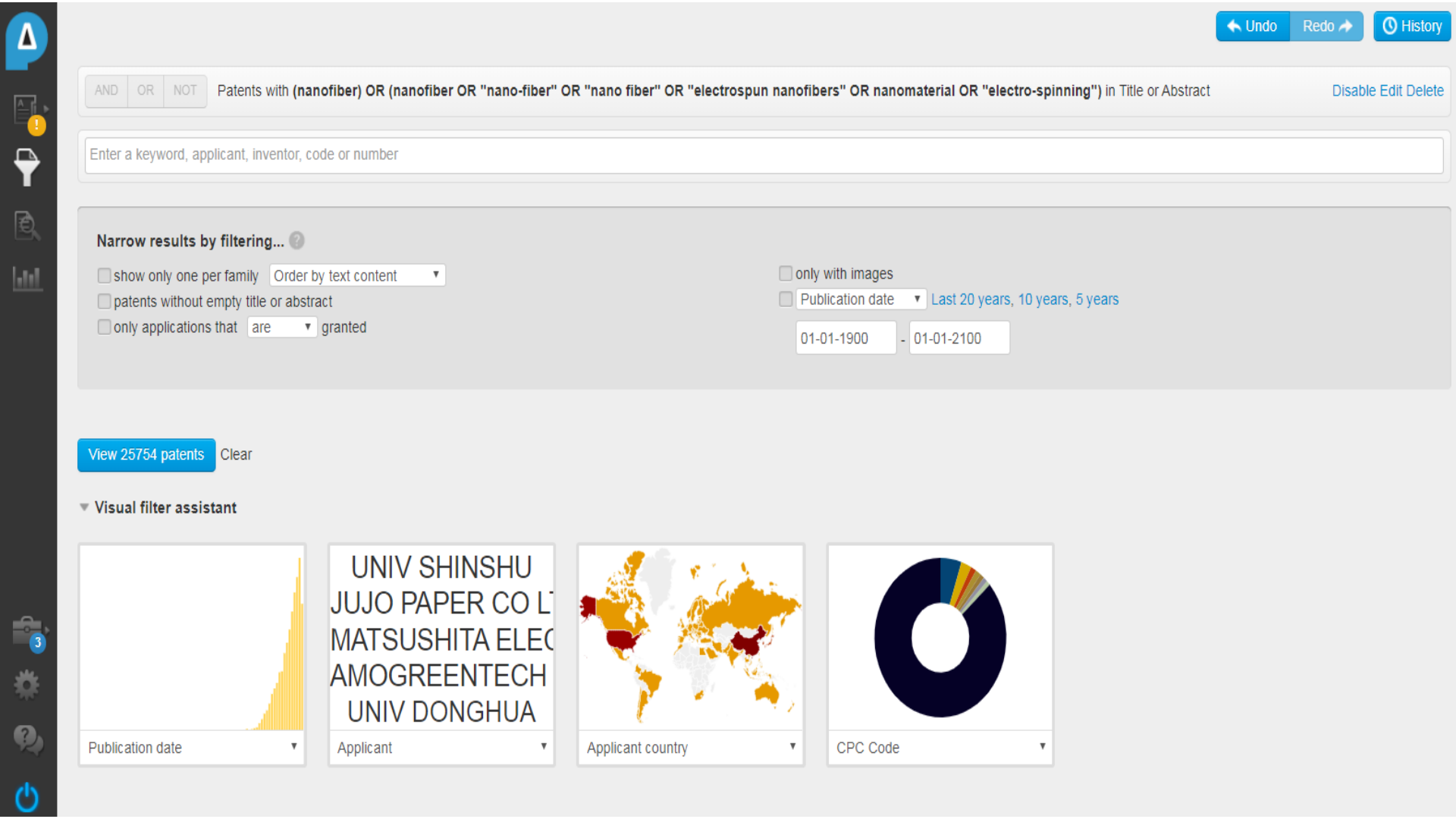
http://www.patentinspiration.com/

Tutorial



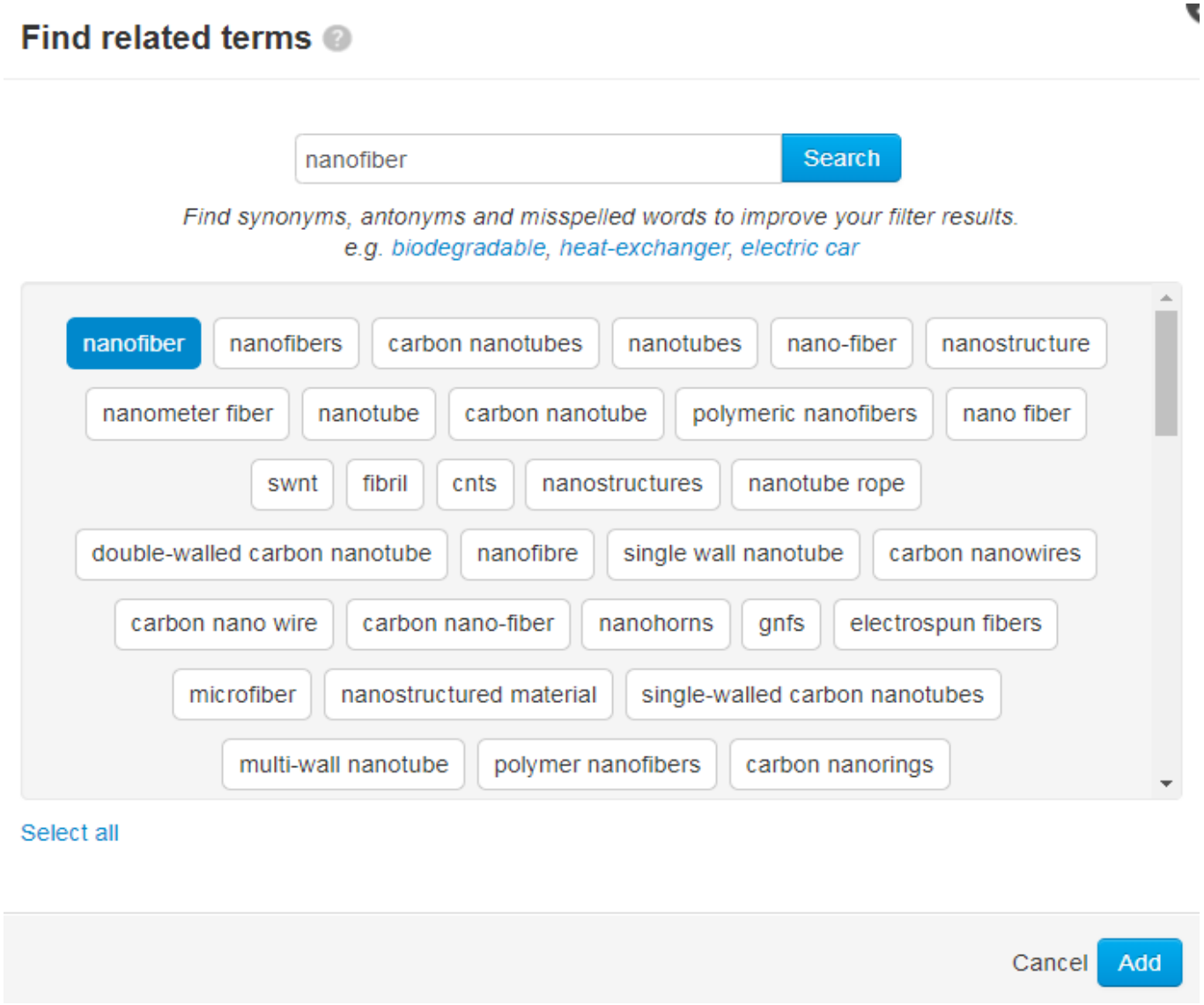
https://support.patentinspiration.com/hc/en-gb

Patent search



PATENT INSPIRATION

Key words and relative terms



PATENT INSPIRATION

List of the patents (257.754)

Edit filter | Analyze patents

PUBLISHED

- 2019 (2507)
- 2018 (3423)
- 2017 (3038)
- 2016 (2736)
- 2015 (2354)

APPLICANT

- UNIV SHINSHU (258)
- JUJO PAPER CO LTD (255)
- MATSUSHITA ELECTR... (253)
- AMOGREENTECH CO... (243)
- UNIV DONGHUA (233)

INVENTOR

- PARK JONG CHEOL (300)
- NOGUCHI TORU (229)
- SUMIDA HIROTO (158)
- KUROKAWA TAKAHIRO (157)
- SEO IN YONG (130)

CPC CODE

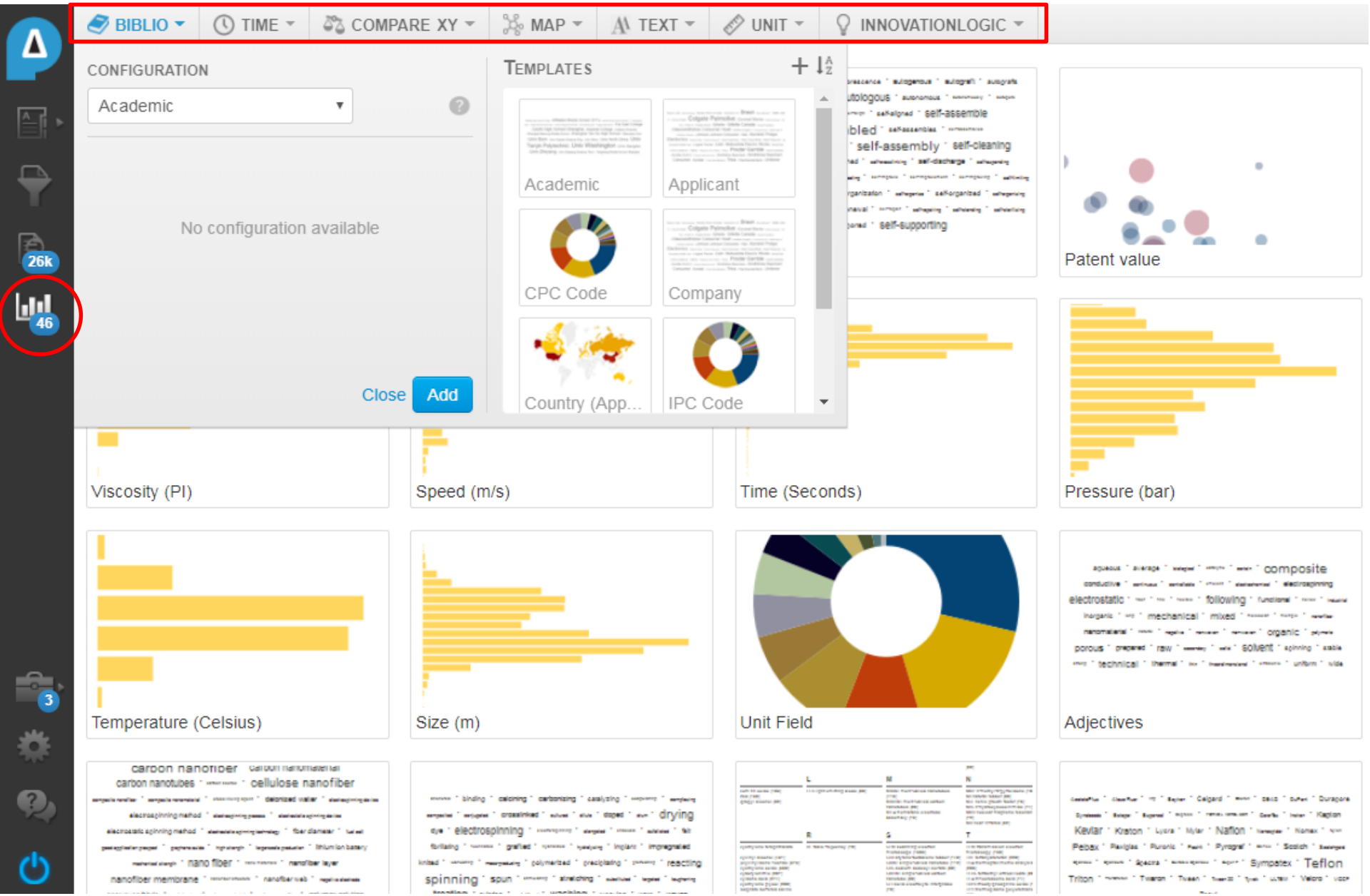
- B82Y30/00 (2406)
- B82Y40/00 (1190)
- B01D2239/025 (625)
- D04H1/728 (623)
- B01D39/1623 (490)

25754 patents

Publication	Title	Publication Dat...	Standardized Applicant
WO2019208313A1	Cellulose nanofiber-containing aqueous dispersion	31 Oct 2019	ASAHI CHEMICAL IND
WO2019207468A1	Pinch valve monitoring	31 Oct 2019	FEELIT TECH LTD
WO2019205364A1	Enhanced raman detection method using satellite structure	31 Oct 2019	XIAMEN SPEC TECH ...
WO2019209762A1	Nanofiber microspheres and methods of use thereof	31 Oct 2019	UNIV NEBRASKA
WO2019208514A1	Cellulose-containing gear	31 Oct 2019	ASAHI CHEMICAL IND
US2019330767A1	Acid-type carboxymethylated cellulose nanofiber and production method thereof	31 Oct 2019	JUJO PAPER CO LTD
US2019327966A1	Polyvinyl alcohol/chitosan composite soluble electrospun nanofibers for disinfectant anti-bacterial and anti-...	31 Oct 2019	THE AMERICAN UNIV ...
US2019329225A1	Material comprising precious metal isolated atoms stable in solution	31 Oct 2019	DALIAN INST CHEM & ...
US2019329221A1	Synthesis and application of A Nanomaterial for Removal of Patulin	31 Oct 2019	UNIV JIANGNAN
US2019328393A1	Implantable nerve guidance conduits having polymer fiber guidance channel	31 Oct 2019	THE TRUSTEES OF T...
WO2019206989A1	Method of obtainment of nanomaterials composed of carbonaceous material and metal oxides	31 Oct 2019	GNANOMAT SL
EP3560963A1	Acid-type carboxymethylated cellulose nanofibers and production method therefor	30 Oct 2019	JUJO PAPER CO LTD
EP3560964A1	Acid-type carboxylated cellulose nanofibers	30 Oct 2019	JUJO PAPER CO LTD
US10456776B1	Method of fabricating a photocatalyst for water splitting	29 Oct 2019	UNIV KING SAUD
US10461325B1	Silicon-carbide reinforced carbon-silicon composites	29 Oct 2019	NANOSTAR INC
US10461320B1	Formation of silicon-carbide reinforced carbon-silicon composites	29 Oct 2019	NANOSTAR INC
AU2019240691A1	Porous adsorbent structure for adsorption of CO2 from a gas mixture	24 Oct 2019	EMPA EIDGENOESSIS...
WO2019200641A1	Efficient low-resistance micro-nano-fiber microscopic gradient structure filtration material, and preparation ...	24 Oct 2019	UNIV SOUTH CHINA T...
WO2019200871A1	Magnesium-based ferrous sulfide composite nanomaterial, preparation method therefor and use thereof	24 Oct 2019	UNIV SOUTH CHINA T...
WO2019203173A1	Method for manufacturing bacterium-produced cellulose carbon	24 Oct 2019	NIPPON TELEGRAPH ...
WO2019200986A1	Vibration wire type micro-vibration and sound emission sensing device with micro-nanofiber based fiber gra...	24 Oct 2019	UNIV HOHAI
WO2019200956A1	Electrostatically-charged nanofiber media and fabrication method thereof	24 Oct 2019	UNIV HONG KONG PO...

PATENT INSPIRATION

Analysis


BIBLIO
TIME
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CONFIGURATION
Academic
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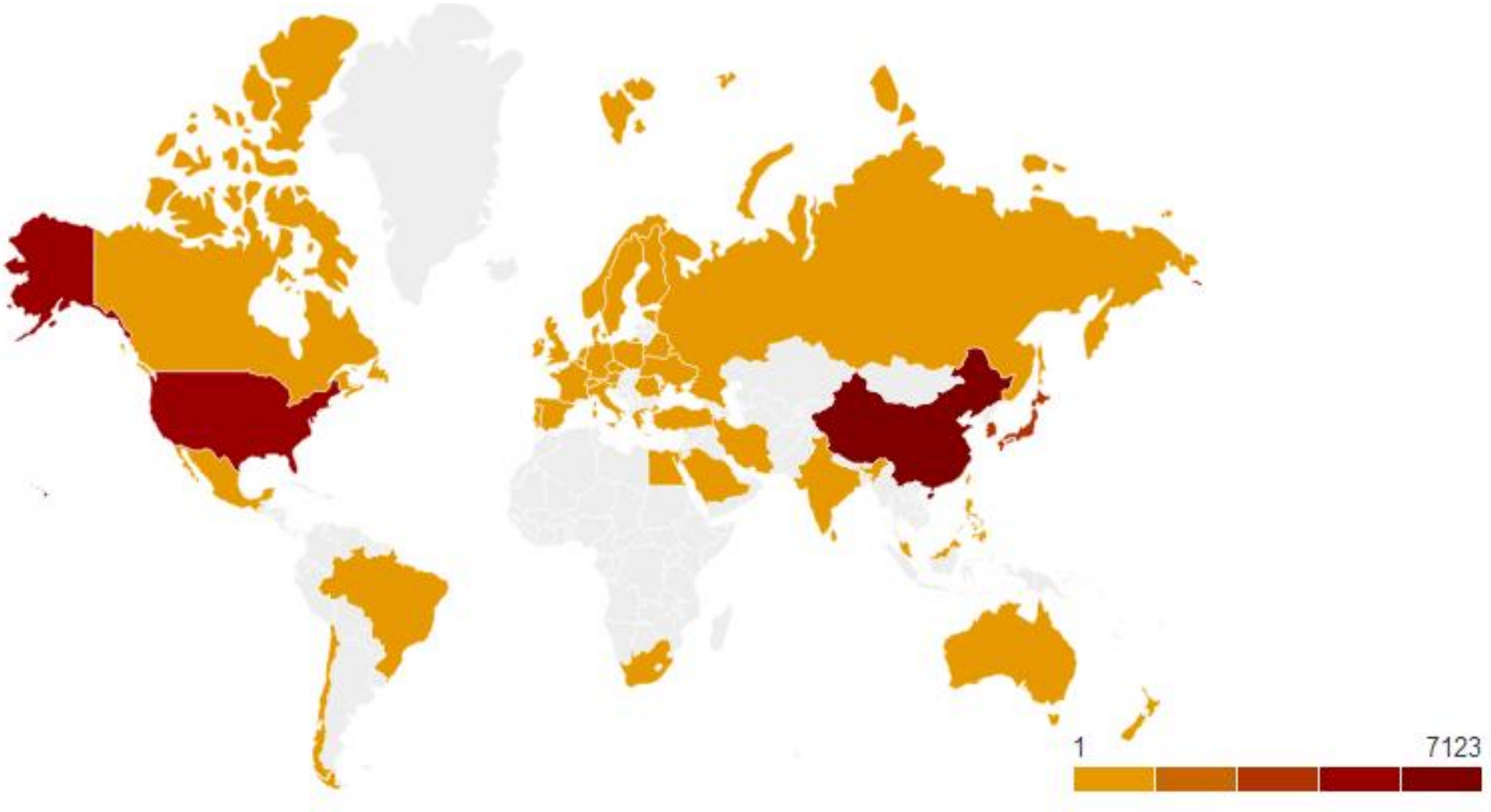
TEMPLATES
Academic
Applicant
CPC Code
Company
Country (App...
IPC Code
26k
46
3
Patent value
Viscosity (PI)
Speed (m/s)
Time (Seconds)
Pressure (bar)
Temperature (Celsius)
Size (m)
Unit Field
Adjectives
carbon nanofiber
carbon nanotubes
cellulose nanofiber
nano fiber
nanofiber membrane
drying
electrospinning
spinning
reacting
Kevlar
Nafion
Teflon

COUNTRY (APPLICANT)

NANOFIBERS FT (25754 PATENTS)

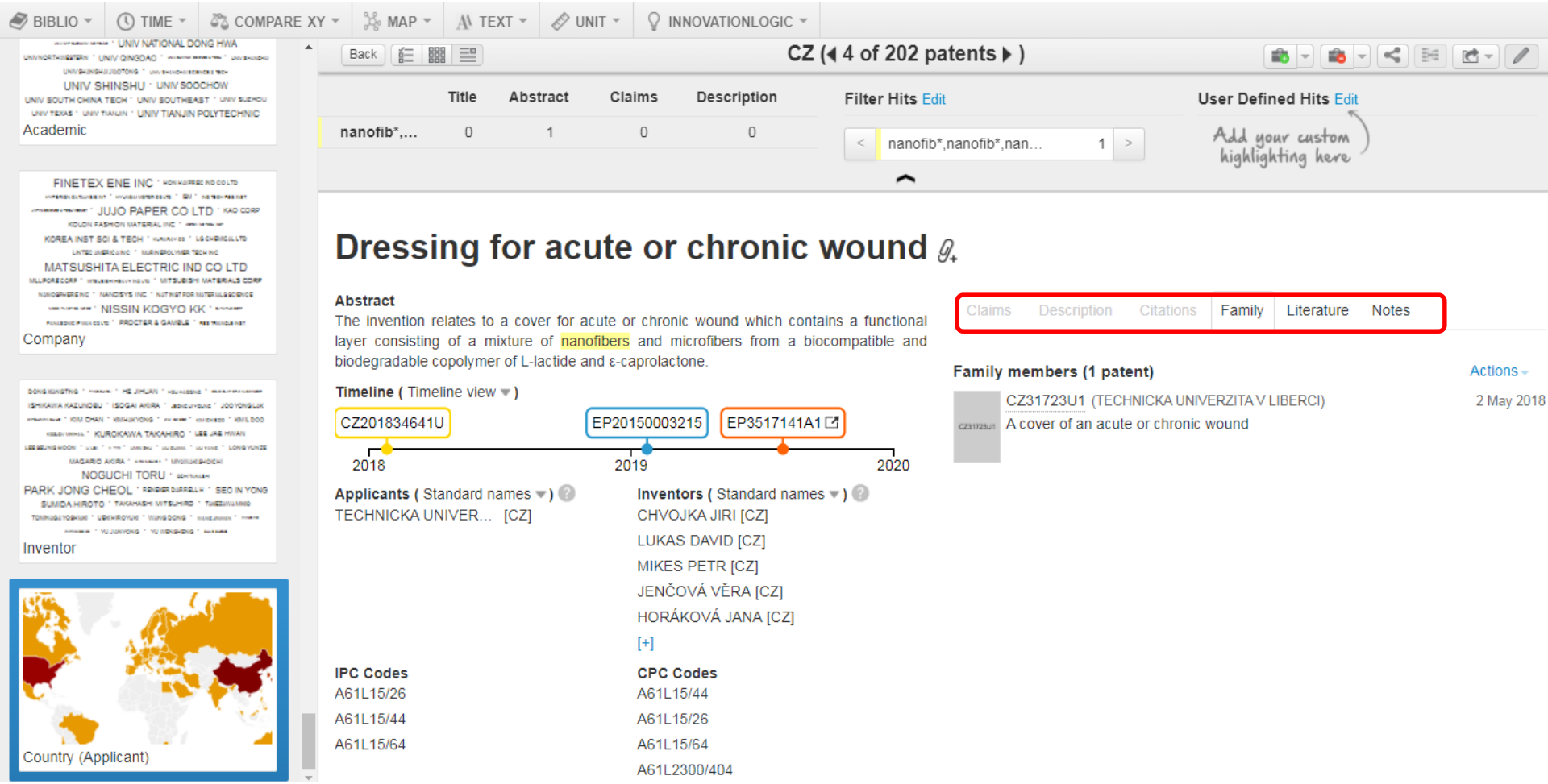


Where are the patents, applicants or inventors located

PATENT INSPIRATION

COUNTRY (APPLICANT)

Choosen patent from Czech republic TUL



Where are the patents, applicants or inventors located

PATENT INSPIRATION

APPLICANT

NANOFIBERS FT (25754 PATENTS)

What are the applicants

PATENT INSPIRATION

INVENTOR

NANOFIBERS FT (25754 PATENTS)

Who are the inventors

PATENT INSPIRATION

COMPANY

NANOFIBERS FT (25754 PATENTS)

What are the companies

PATENT INSPIRATION

ACADEMIC

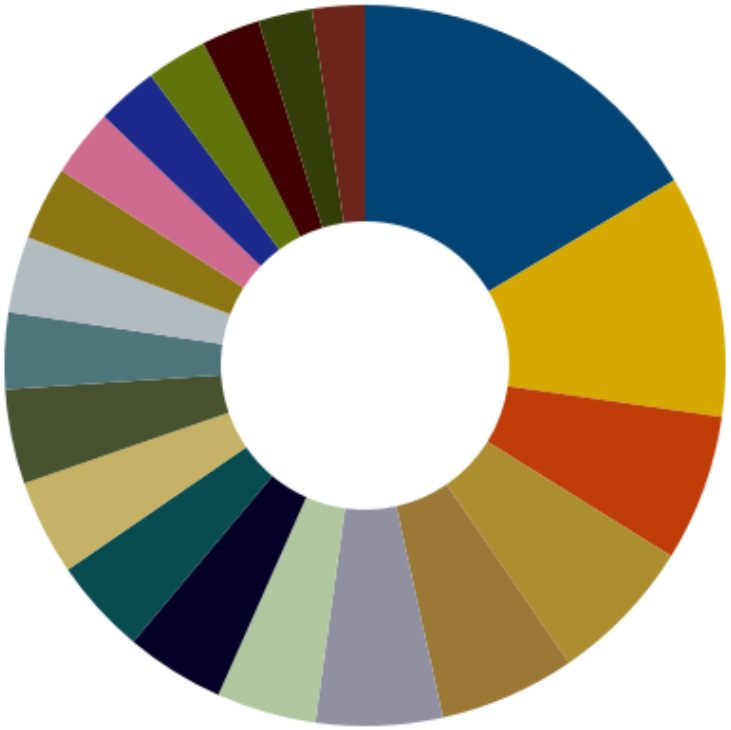
NANOFIBERS FT (25754 PATENTS)

What are the schools, universities and institutions

PATENT INSPIRATION

IPC CODE (MAINGROUP) - International Patent Classification

NANOFIBERS FT (25754 PATENTS)



- **D01D5/00 (4051 patents, 16%)** Formation of filaments
- **D04H1/00 (2684 patents, 11%)** Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres
- **H01M4/00 (1624 patents, 7%)** Electrodes
- **B82Y30/00 (1621 patents, 7%)** Nanotechnology for materials or surface science
- **B82Y40/00 (1506 patents, 6%)** Manufacture or treatment of nanostructures
- **D01F9/00 (1401 patents, 6%)** Man-made filaments or the like of other substances
- **B01D39/00 (1102 patents, 4%)** Filtering material for liquid or gaseous fluids
- **C01B31/00 (1095 patents, 4%)** Carbon
- **C08K3/00 (1064 patents, 4%)** Use of inorganic substances as compounding ingredients
- **D01F6/00 (1058 patents, 4%)** Monocomponent man-made filaments or the like of synthetic polymers
- **D01F1/00 (1047 patents, 4%)** General methods for the manufacture of man-made filaments or the like

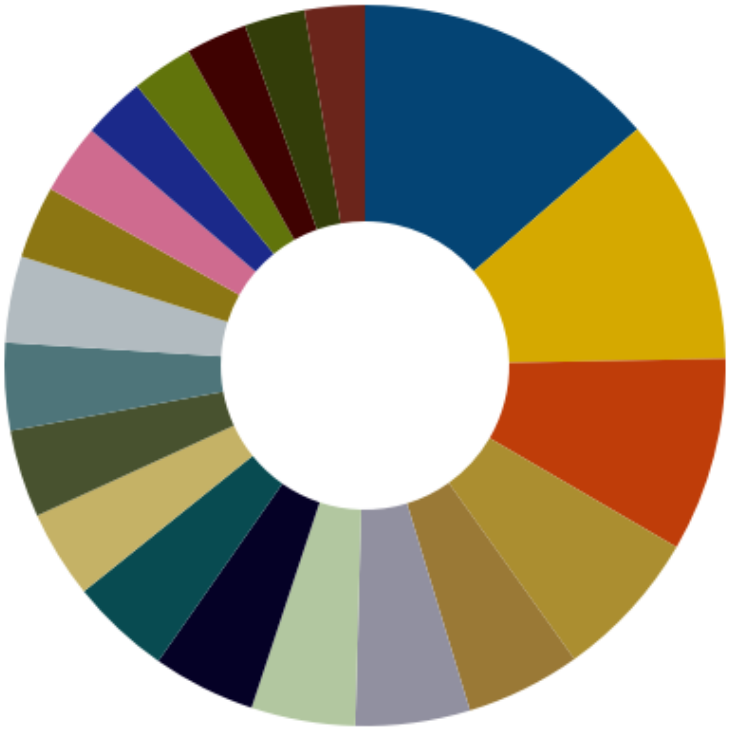
Which codes are used

PATENT INSPIRATION

CPC CODE (MAINGROUP)

NANOFIBERS FT (25754 PATENTS)

The Cooperative **Patent** Classification (**CPC**) is a **patent** classification system, which has been jointly developed by the European **Patent** Office (EPO) and the United States **Patent** and Trademark Office (USPTO).



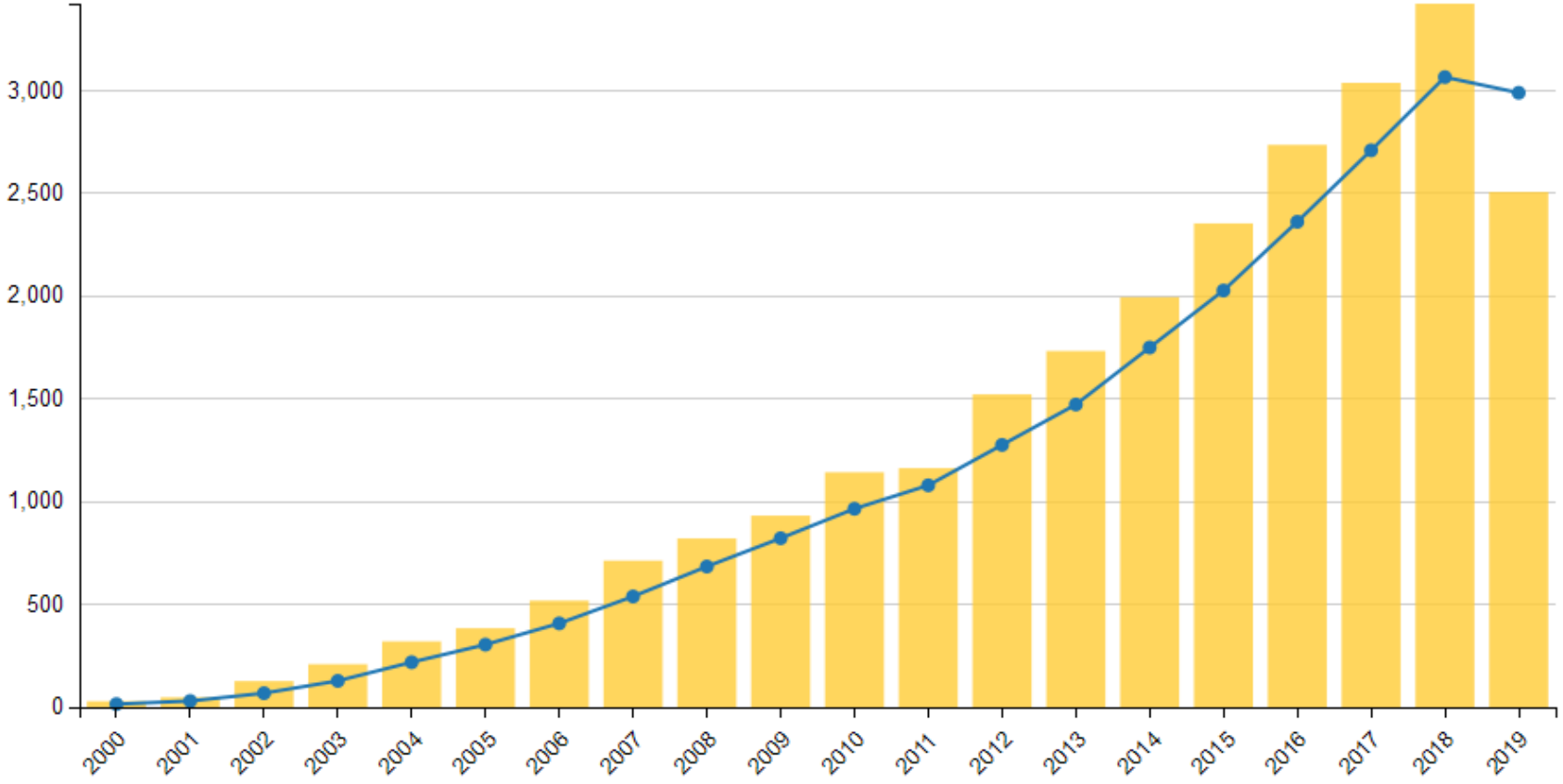
- **B82Y30/00 (2406 patents, 14%)** Nanotechnology for materials or surface science
- **D01D5/00 (1956 patents, 11%)** Formation of filaments
- **Y10T428/00 (1537 patents, 9%)** Stock material or miscellaneous articles
- **B82Y40/00 (1190 patents, 7%)** Manufacture or treatment of nanostructures
- **D04H1/00 (911 patents, 5%)** Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres
- **C01B32/00 (907 patents, 5%)** Carbon;Compounds thereof
- **Y02E60/00 (824 patents, 5%)** Enabling technologies or technologies with a potential or indirect contribution to GHG emissions mitigation
- **Y10S977/00 (815 patents, 5%)** Nanotechnology
- **H01M4/00 (797 patents, 5%)** Electrodes
- **D01F9/00 (696 patents, 4%)** Artificial filaments or the like of other substances;Manufacture thereof;Apparatus specially adapted for the manufacture of carbon filaments
- **D01F6/00 (695 patents, 4%)** Monocomponent artificial filaments or the like of synthetic polymers;Manufacture thereof

Which codes are used

PATENT INSPIRATION

ACTIVITY (PUBLICATION DATE)

NANOFIBERS FT (25754 PATENTS)

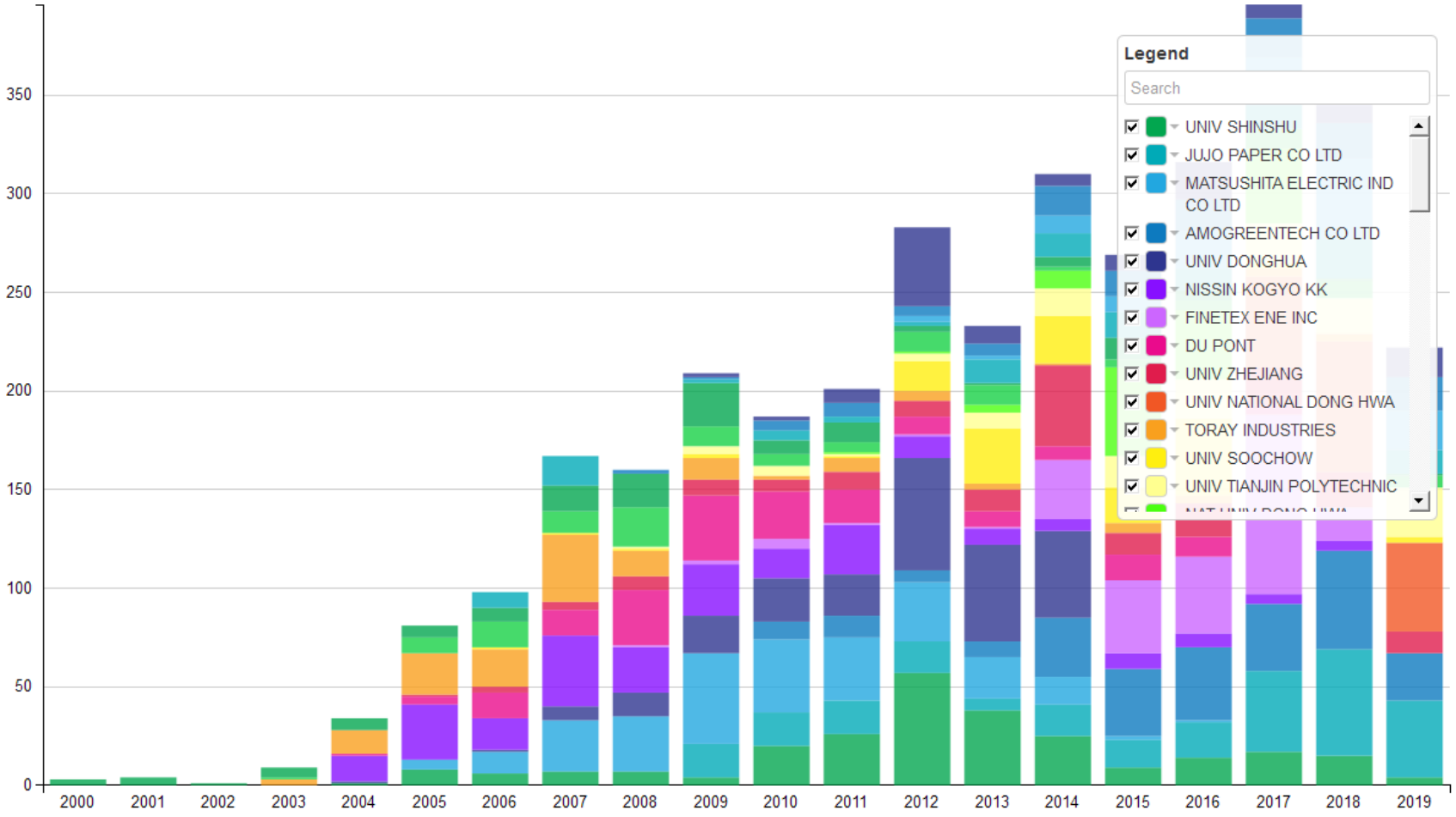


Number of patents over time

PATENT INSPIRATION

APPLICANT TIMELINE

NANOFIBERS FT (25754 PATENTS)

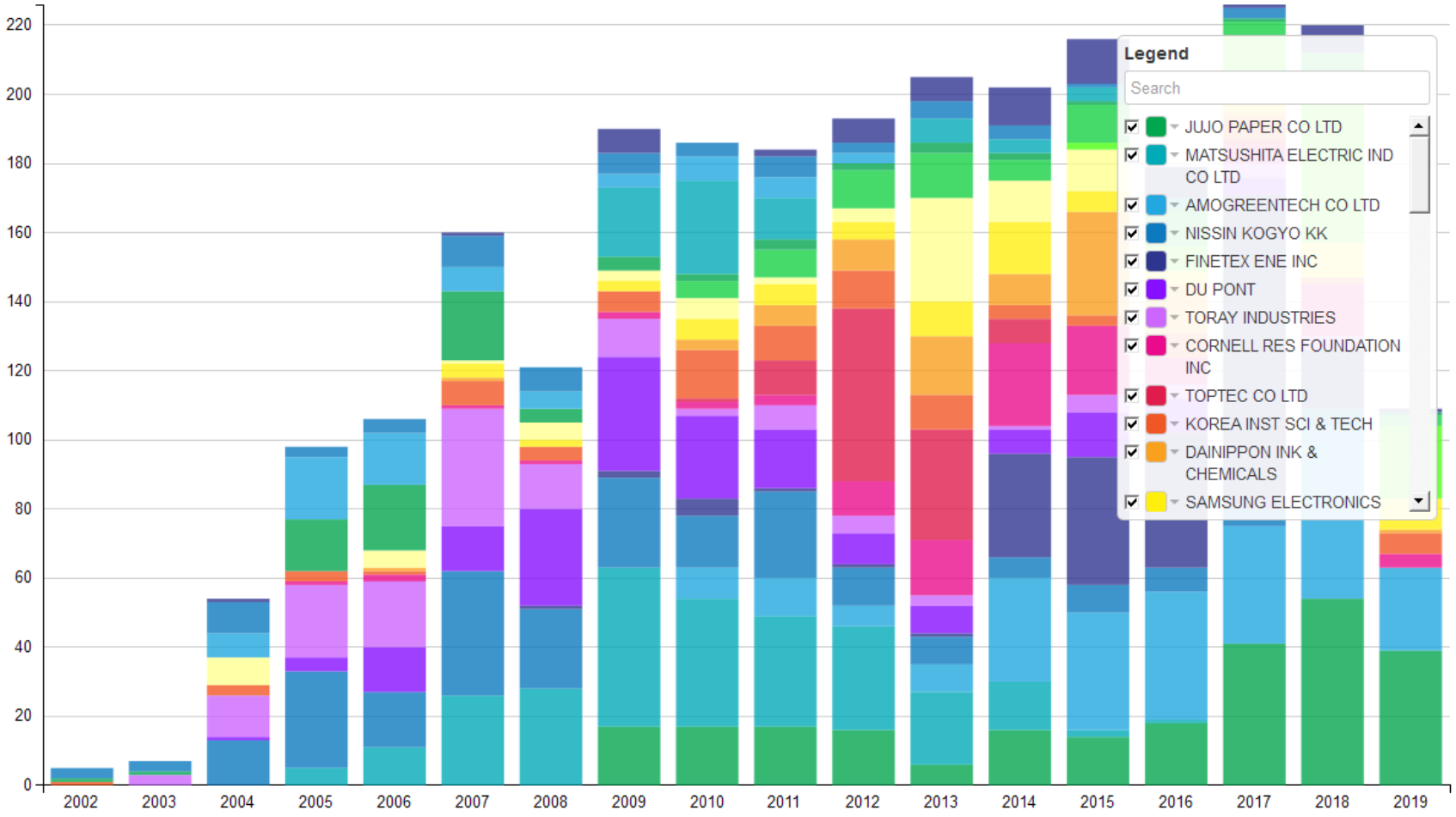


Who or what over time

PATENT INSPIRATION

COMPANY TIMELINE

NANOFIBERS FT (25754 PATENTS)

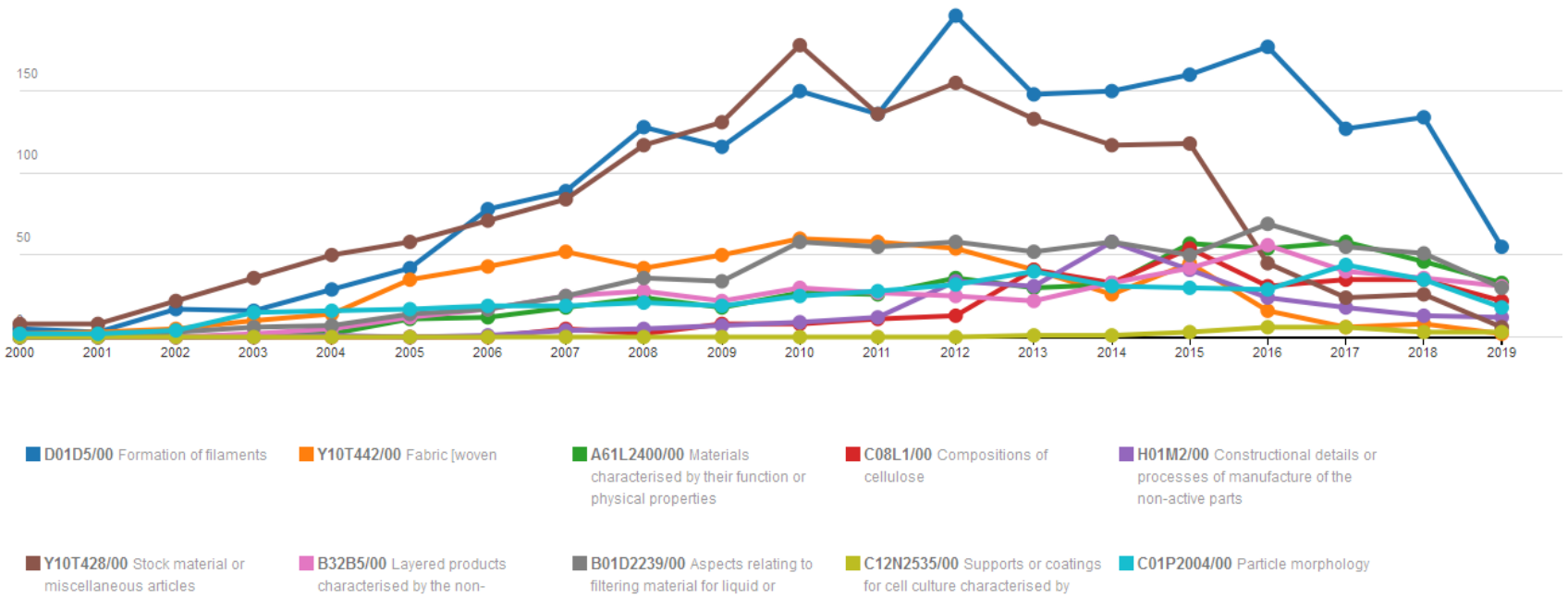


Who or what over time

PATENT INSPIRATION

CODE EVOLUTION (CPC)

NANOFIBERS FT (25754 PATENTS)



Who or what has an increasing trend of minimum 3 years

PATENT INSPIRATION

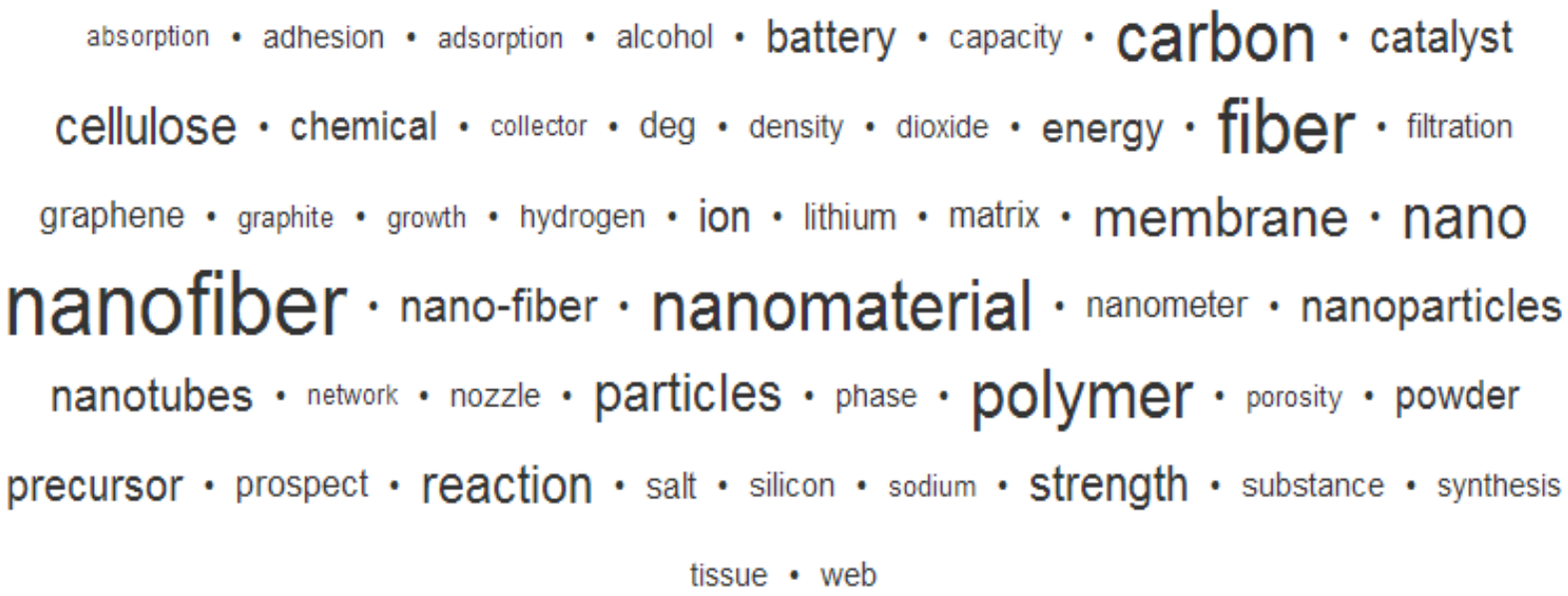
PROBLEMS VS COMPANIES

NANOFIBERS FT (25754 PATENTS)

Who or what versus who or what

NOUNS

NANOFIBERS FT (25754 PATENTS)

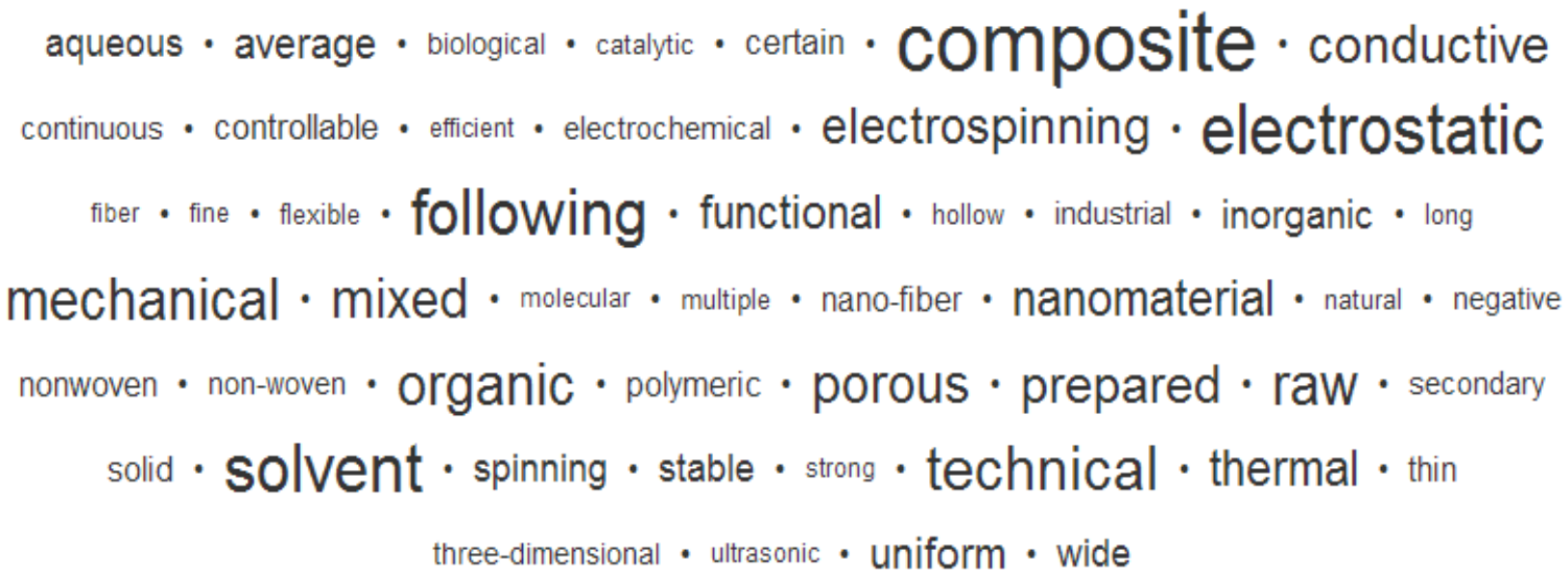


Which nouns are mentioned

PATENT INSPIRATION

ADJECTIVES

NANOFIBERS FT (25754 PATENTS)



Which adjectives are mentioned

PATENT INSPIRATION

VERBS

NANOFIBERS FT (25754 PATENTS)

Which verbs are mentioned

PATENT INSPIRATION

GLOSSARY

NANOFIBERS FT (25754 PATENTS)

A

AFM atomic force microscopy (243)
ALD atomic layer deposition (106)
ABS acrylonitrile butadiene styrene (103)

B

BSA bovine serum albumin (116)
BR butadiene rubber (72)
BET brunauer-emmett-teller (60)

C

CVD chemical vapor deposition (493)
CNT carbon nanotube (340)
CNF carbon nanofiber (325)
CMC carboxymethyl cellulose (119)
CV cyclic voltammetry (104)
CD circular dichroism (88)
CR chloroprene rubber (71)
CA cellulose acetate (70)
CTAB cetyltrimethylammonium bromide (61)
CO carbon (61)

D

DMF dimethylformamide (416)
DSC differential scanning calorimetry (182)
DMSO dimethyl sulfoxide (178)
DI deionized (157)
DCM dichloromethane (71)
DC direct current (69)

E

ECM extracellular matrix (187)
EC ethylene carbonate (100)
EDS energy dispersive spectroscopy (88)
EGF epidermal growth factor (86)
EMI electromagnetic interference (78)
EDX energy dispersive x-ray (73)

F

FTIR fourier transform infrared (143)
FBS fetal bovine serum (111)
FWHM full width half maximum (90)
FGF fibroblast growth factor (79)

G

GO graphene oxide (80)

H

HPLC high pressure liquid chromatography (87)
HRTEM high resolution transmission electron microscopy (87)
HA hydroxyapatite (80)
HF hydrofluoric (61)
HDPE high density polyethylene (60)

I

ITO indium tin oxide (195)
IR infrared (130)
IPA isopropyl alcohol (92)

L

LED light emitting diode (80)

M

MWNT multi-walled nanotubes (116)
MWCNT multi-walled carbon nanotubes (96)
MEA membrane electrode assembly (73)

N

NMP n-methyl-2-pyrrolidone (184)
NR natural rubber (80)
NGF nerve growth factor (76)
NHS n-hydroxysuccinimide (74)
NMR nuclear magnetic resonance (72)
NIR near infrared (62)

P

PET polyethylene terephthalate (473)
PVA polyvinyl alcohol (431)
PVDF polyvinylidene fluoride (373)
PEO polyethylene oxide (368)
PAN polyacrylonitrile (287)
PLA polylactic acid (274)
PEG polyethylene glycol (209)
PBS phosphate buffered saline (204)
PTFE polytetrafluoroethylene (192)
PMMA polymethyl methacrylate (171)
PVC polyvinyl chloride (149)
PCL polycaprolactone (144)
PS polystyrene (142)
PE polyethylene (125)
PDMS polydimethylsiloxane (121)
PC propylene carbonate (119)
PGA polyglycolic acid (117)
PBT polybutylene terephthalate (114)
PECVD plasma enhanced chemical vapor deposition (109)
PAA polyacrylic acid (108)
PVP polyvinyl pyrrolidone (106)
PU polyurethane (103)
PVD physical vapor deposition (103)
PI polyimide (99)
PA polyamide (93)
PEI polyethylenimine (93)
PES polyethersulfone (92)
PEN polyethylene naphthalate (90)
PDGF platelet-derived growth factor (81)
PEM proton exchange membrane (65)
PLGA polyglycolic acid (60)

R

RF radio frequency (78)

S

SEM scanning electron microscope (1385)
SBR styrene-butadiene rubber (140)
SWNT single-walled nanotube (112)
SDS sodium dodecyl sulfate (99)
SWCNT single-walled carbon nanotube (80)
SEI solid electrolyte interphase (70)

T

TEM transmission electron microscopy (750)
THF tetrahydrofuran (220)
TGA thermogravimetric analysis (206)
TEOS tetraethyl orthosilicate (98)
TFA trifluoroacetic acid (74)
TOPO trioctylphosphine oxide (70)
TPU thermoplastic polyurethane (60)

U

UV ultraviolet (142)

V

VEGF vascular endothelial growth factor (115)

X

XRD x-ray diffraction (316)
XPS x-ray photoelectron spectroscopy (162)

Which abbreviations are mentioned

PATENT INSPIRATION

TECHNOLOGY

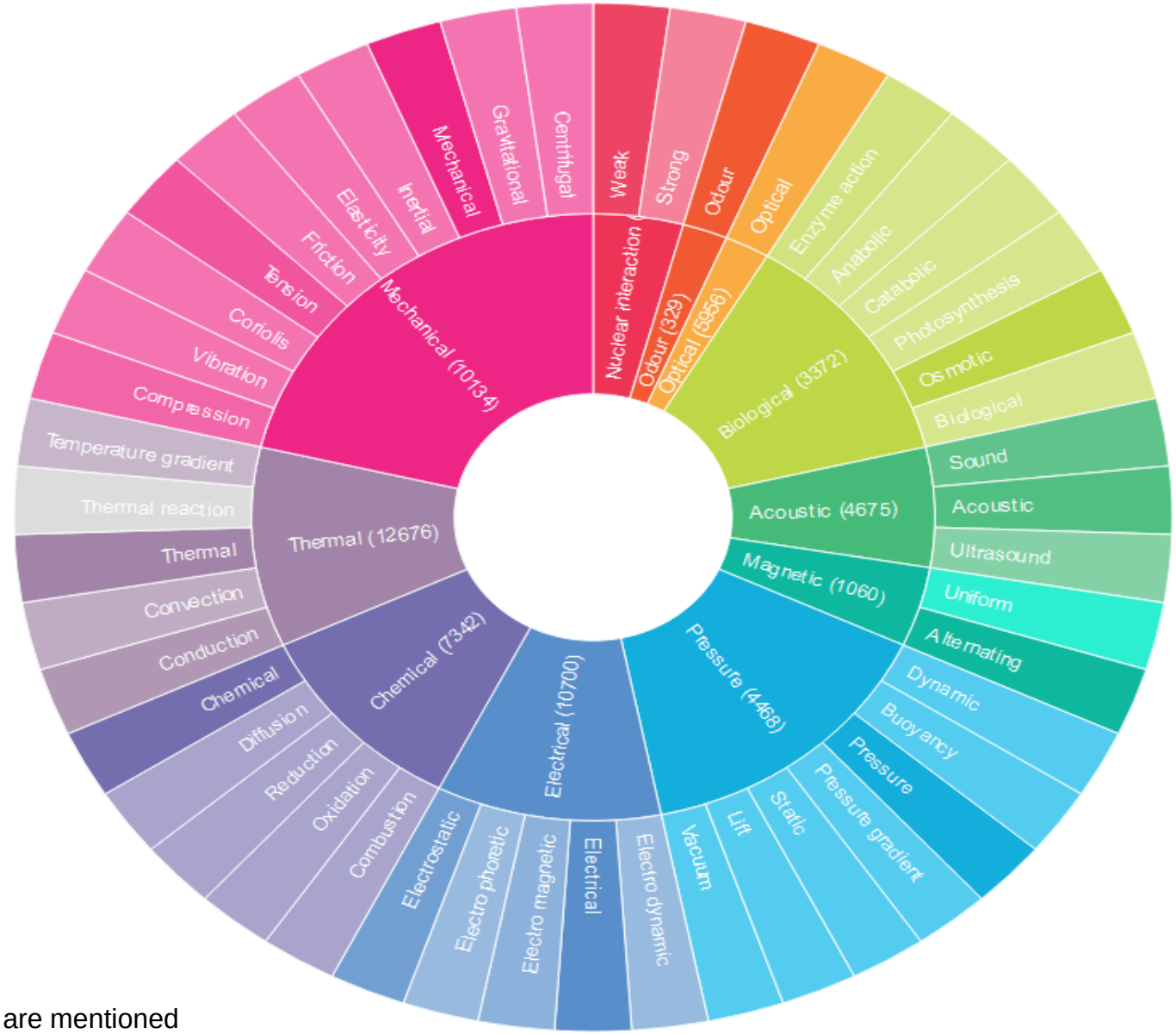
NANOFIBERS FT (25754 PATENTS)

Which technological areas are mentioned

NT IRATION

FIELD

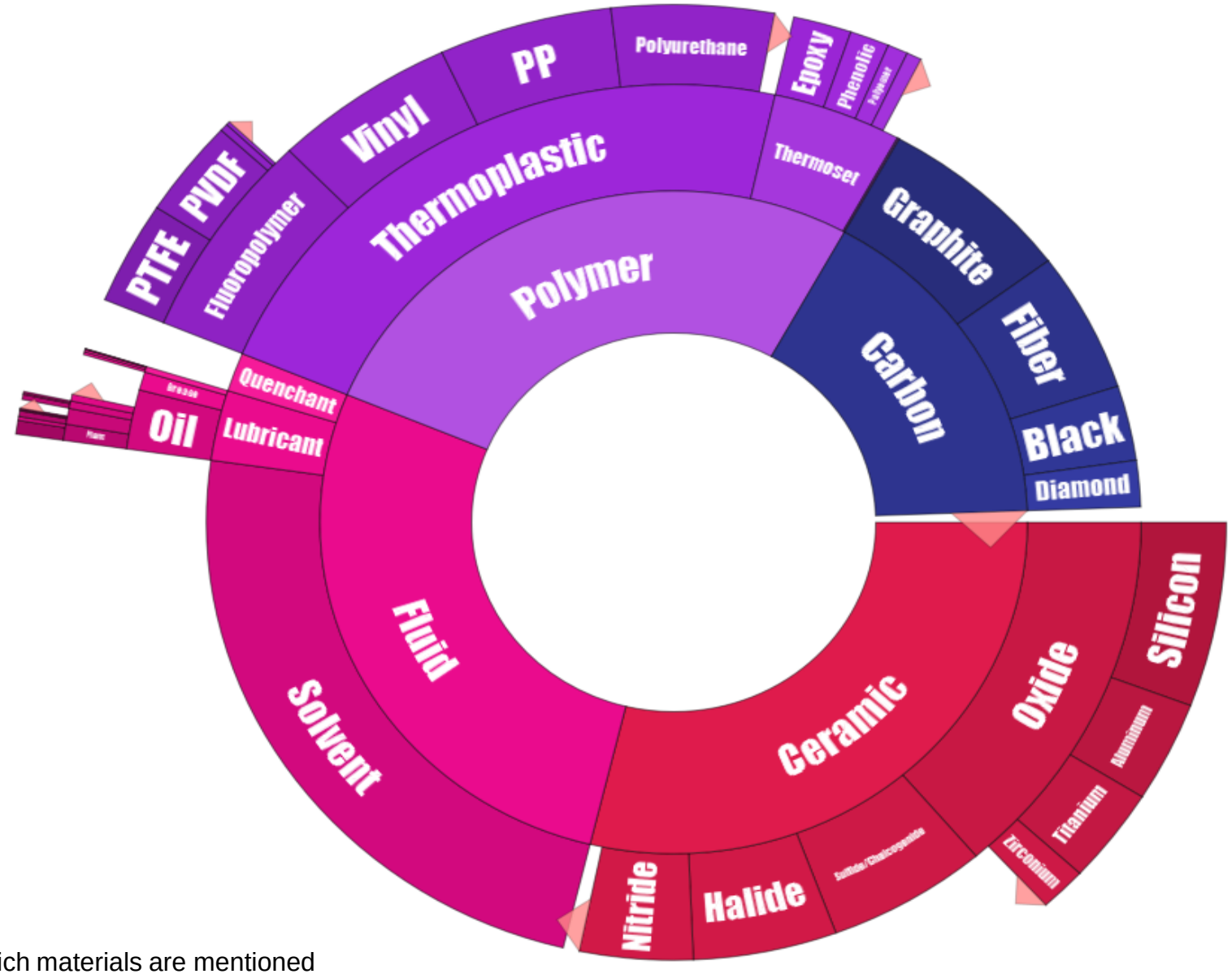
NANOFIBERS FT (25754 PATENTS)



Which fields are mentioned

MATERIALS

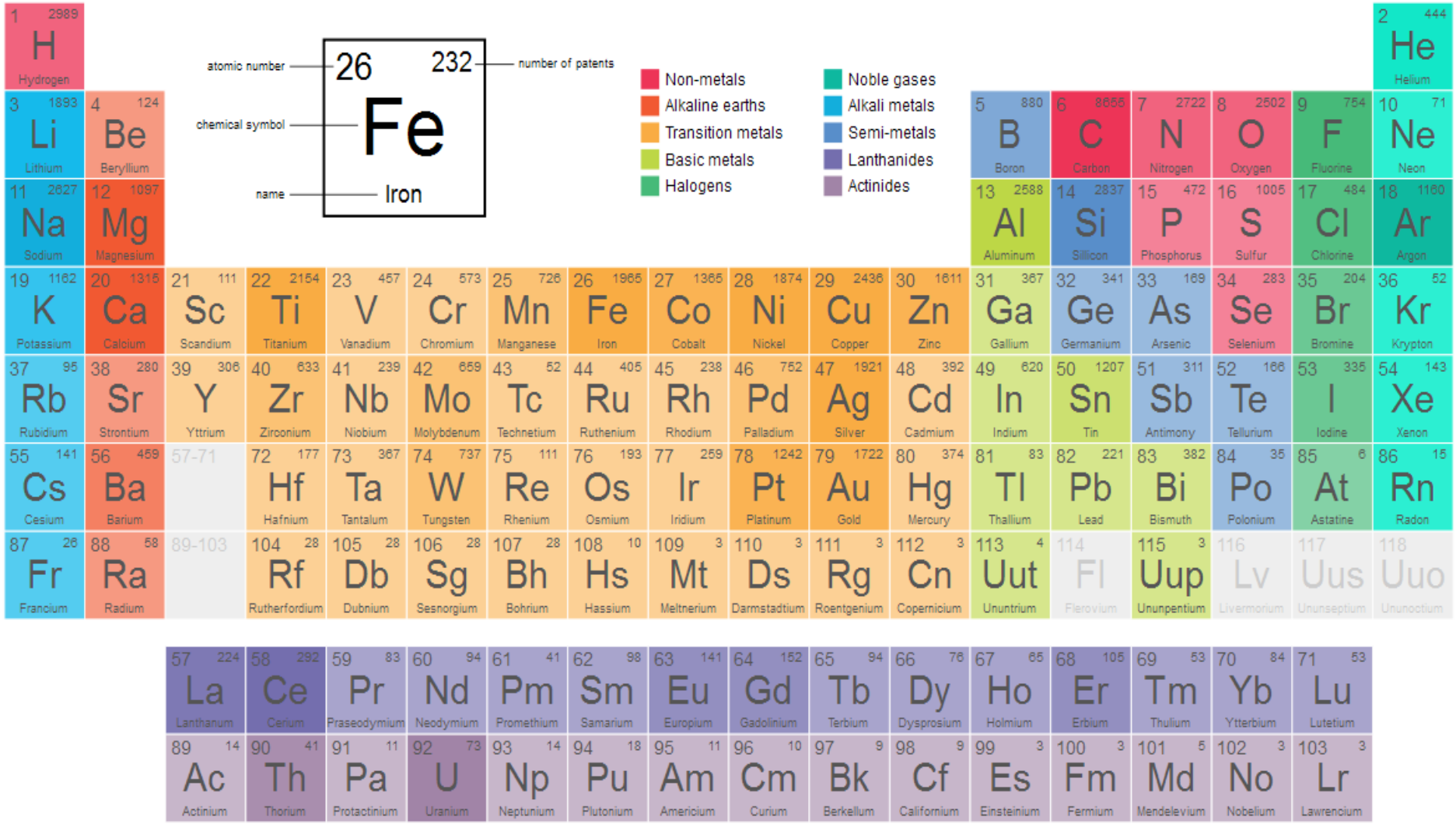
NANOFIBERS FT (25754 PATENTS)



Which materials are mentioned

ELEMENTS

NANOFIBERS FT (25754 PATENTS)



Which elements are mentioned

PATENT INSPIRATION

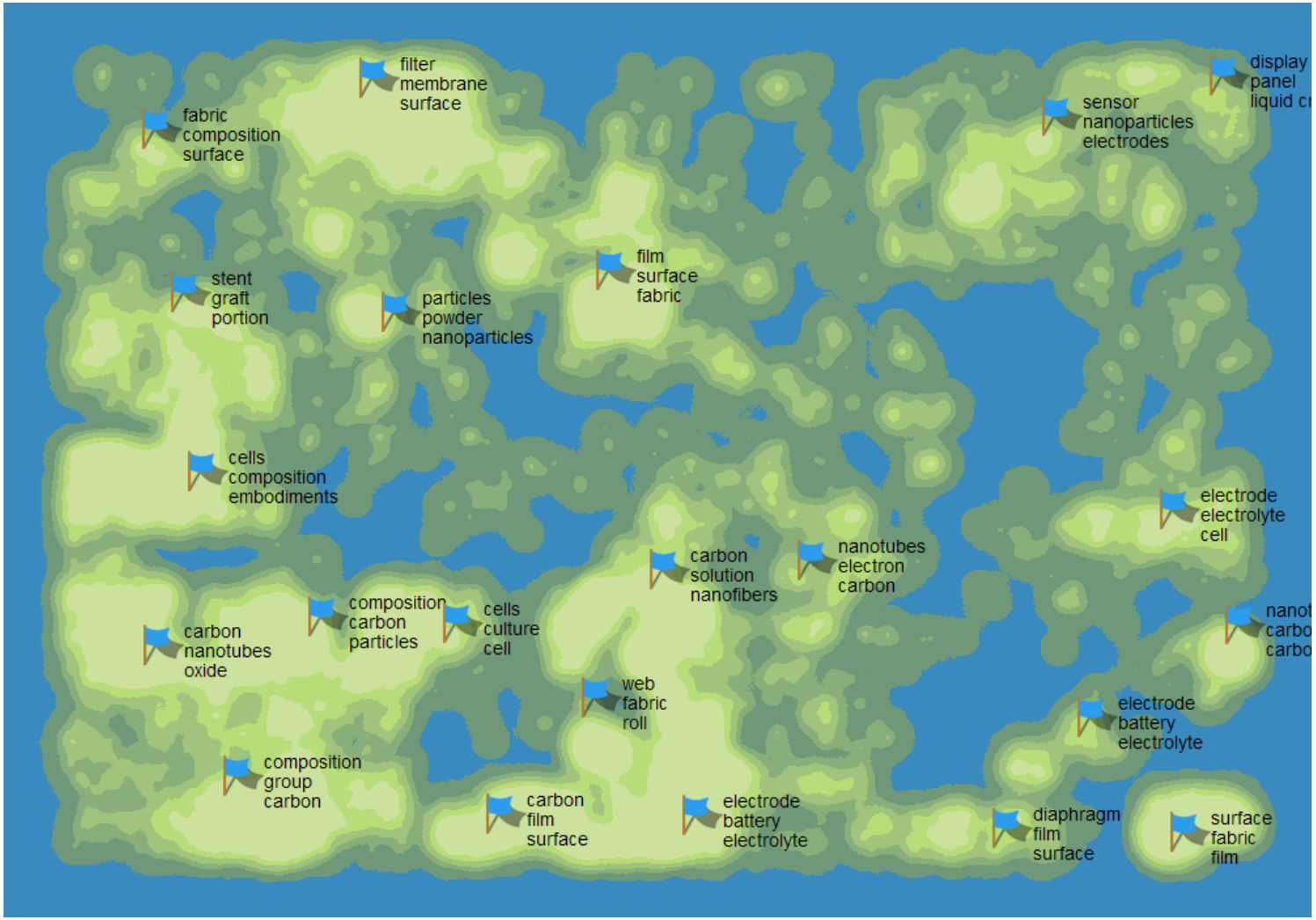
DOMAIN (CPC)

NANOFIBERS FT (25754 PATENTS)

In which code domains are your patents

CODE MAP (CPC)

NANOFIBERS FT (25754 PATENTS)

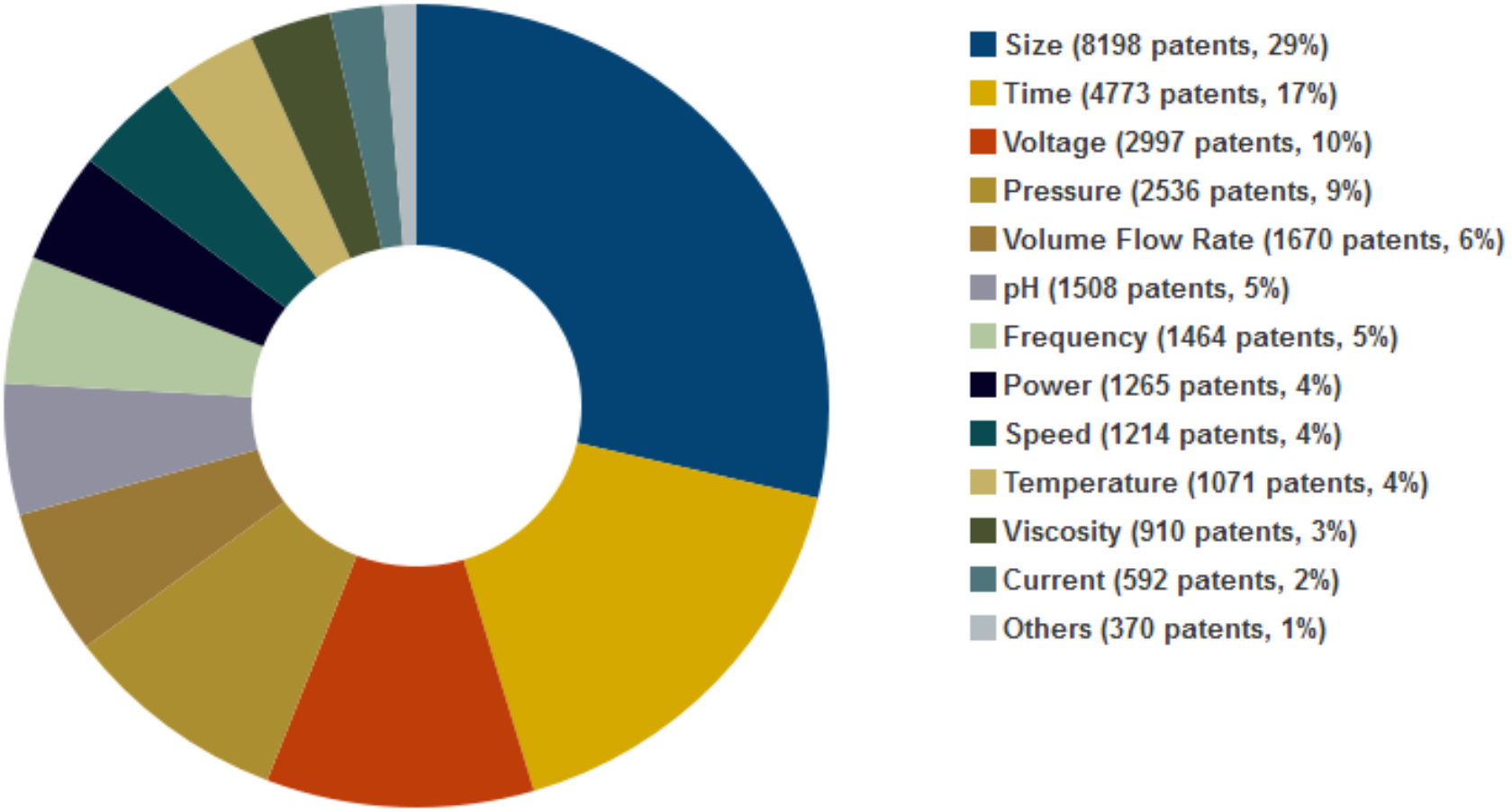


Codes of patents on a landscape

PATENT INSPIRATION

UNIT FIELD

NANOFIBERS FT (25754 PATENTS)

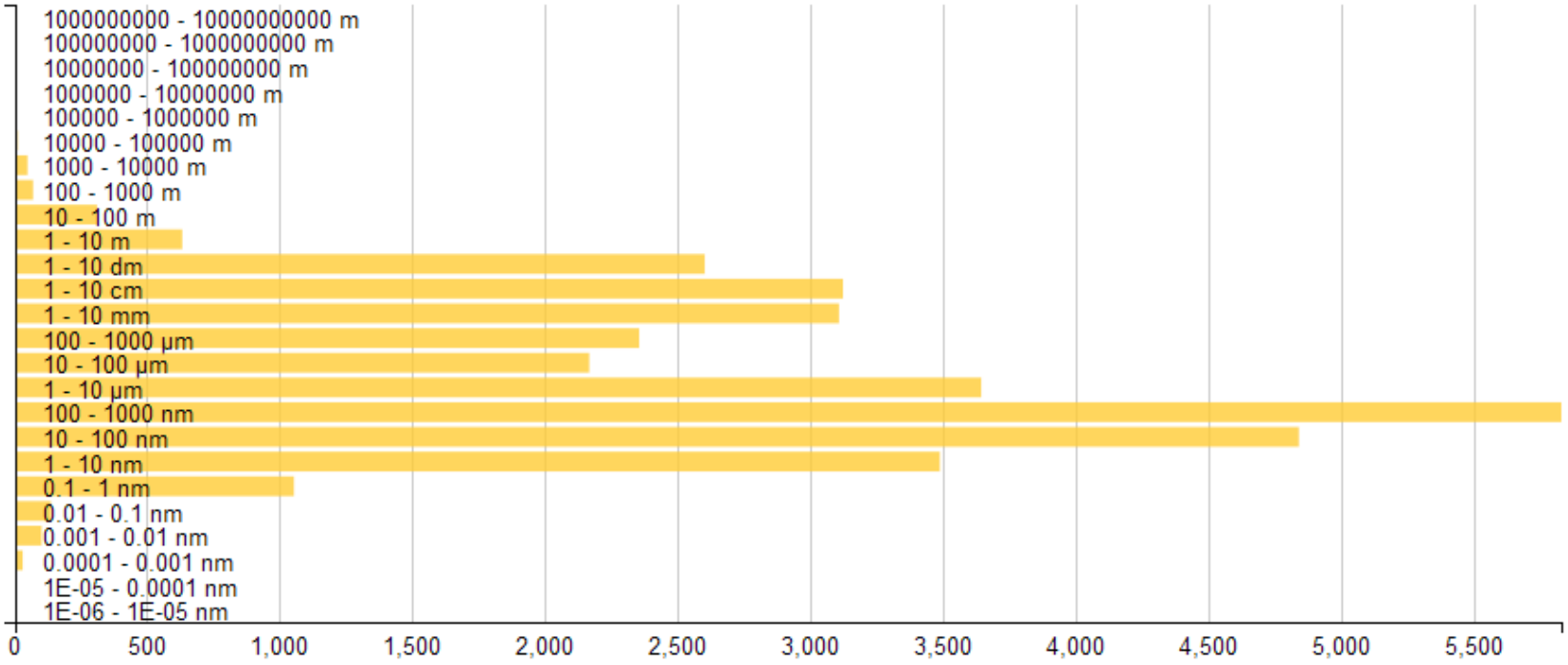


Which units are mentioned

PATENT INSPIRATION

SIZE (M)

NANOFIBERS FT (25754 PATENTS)

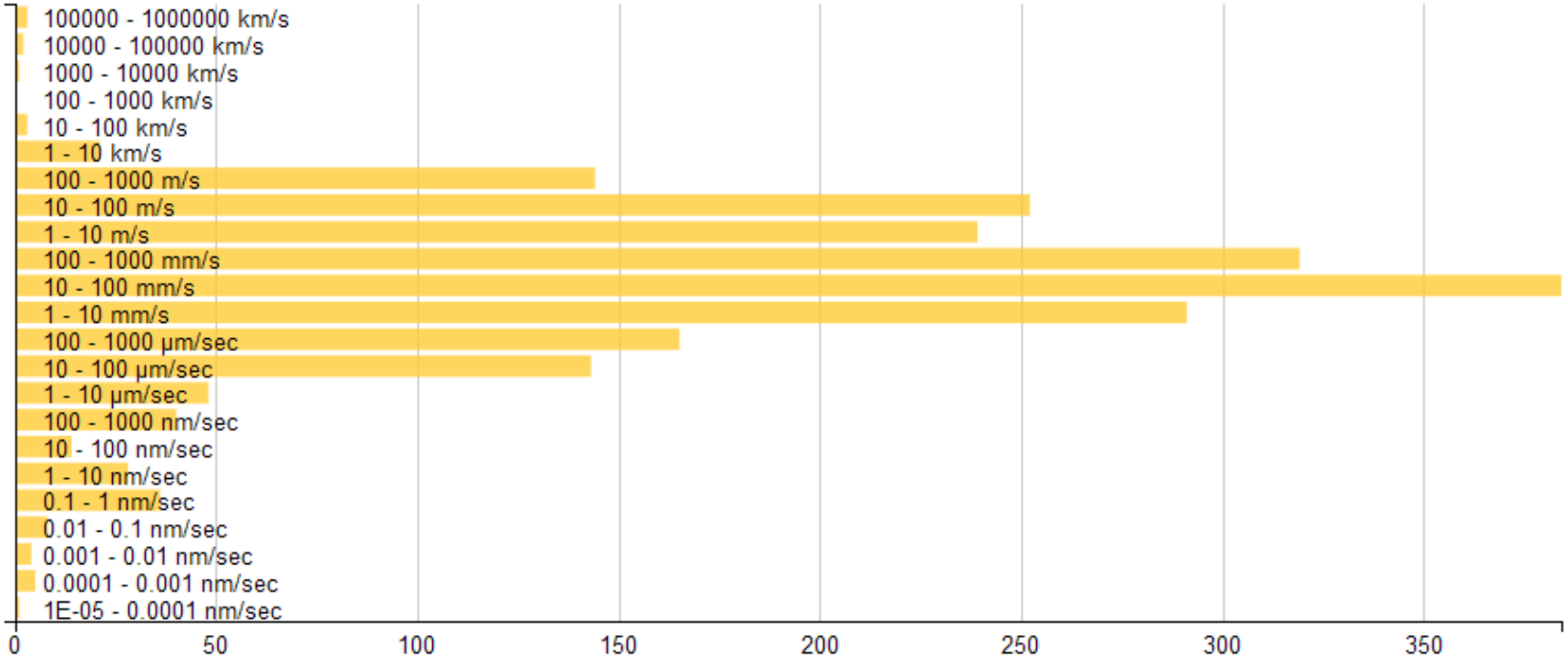


Which size units are used

PATENT INSPIRATION

SPEED (M/S)

NANOFIBERS FT (25754 PATENTS)

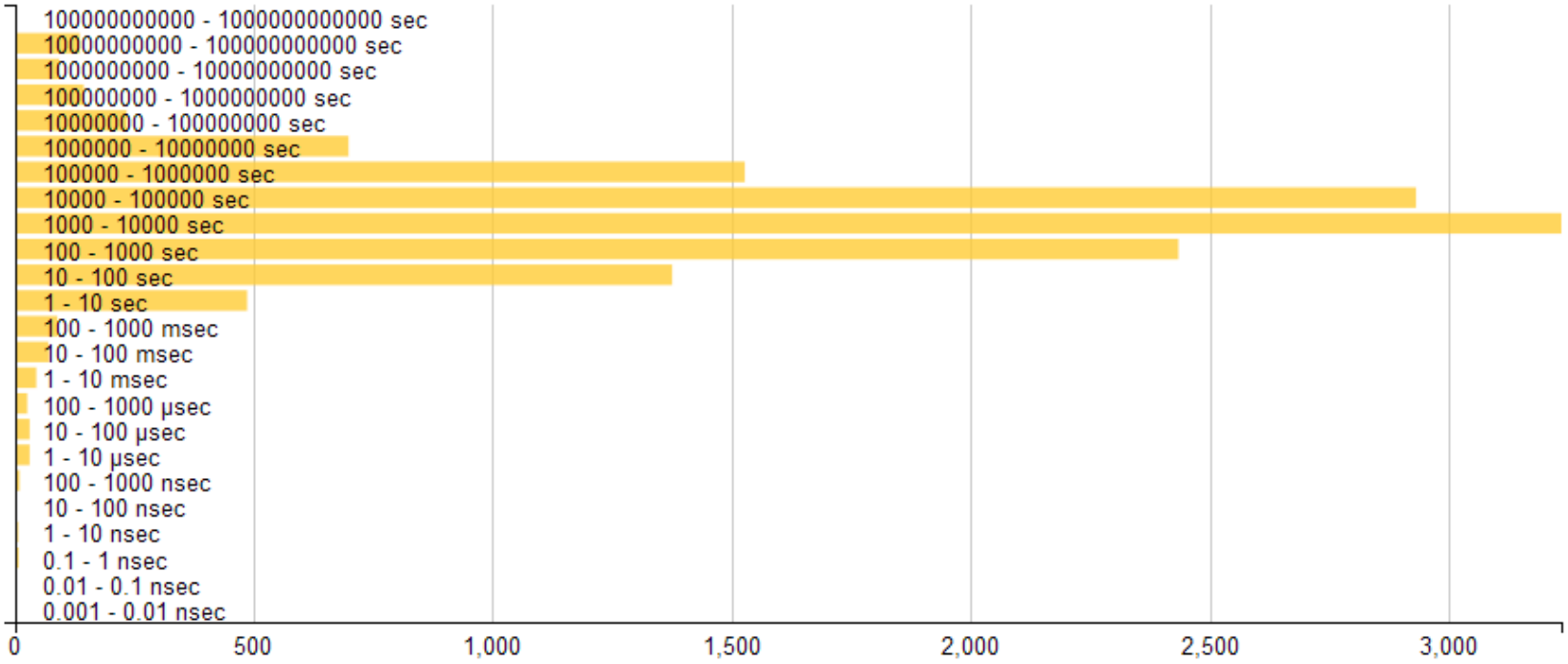


Which speed units are used

PATENT INSPIRATION

TIME (SECONDS)

NANOFIBERS FT (25754 PATENTS)

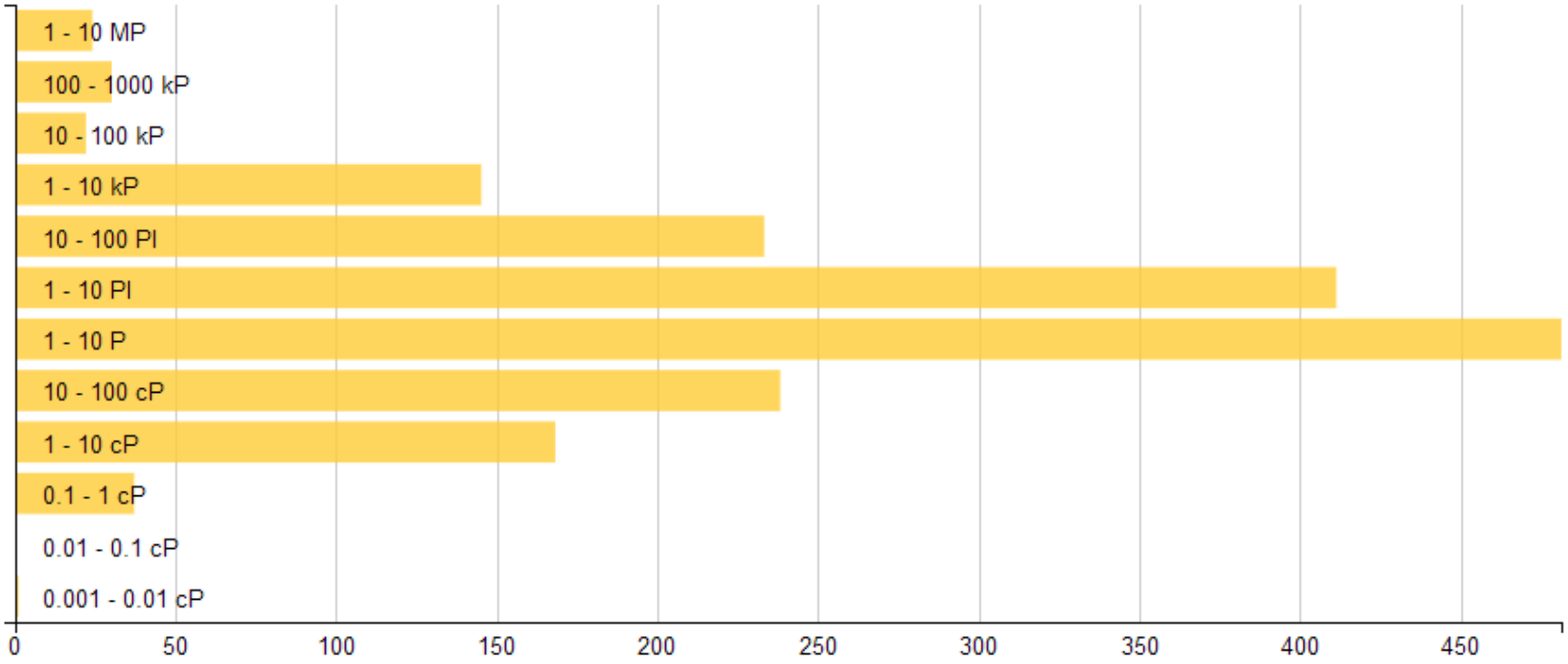


Which time units are used

PATENT INSPIRATION

VISCOSITY (PI)

NANOFIBERS FT (25754 PATENTS)

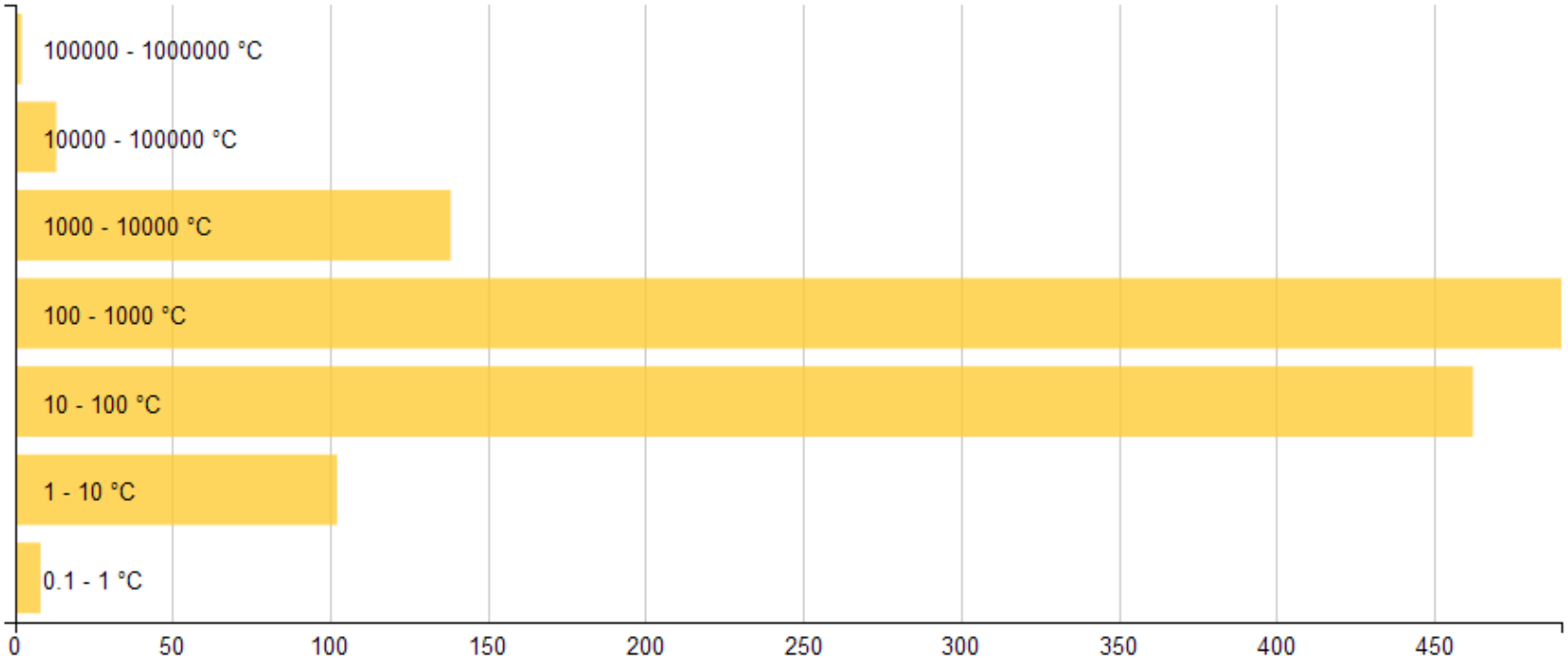


Which viscosity units are used

PATENT INSPIRATION

TEMPERATURE (CELSIUS)

NANOFIBERS FT (25754 PATENTS)

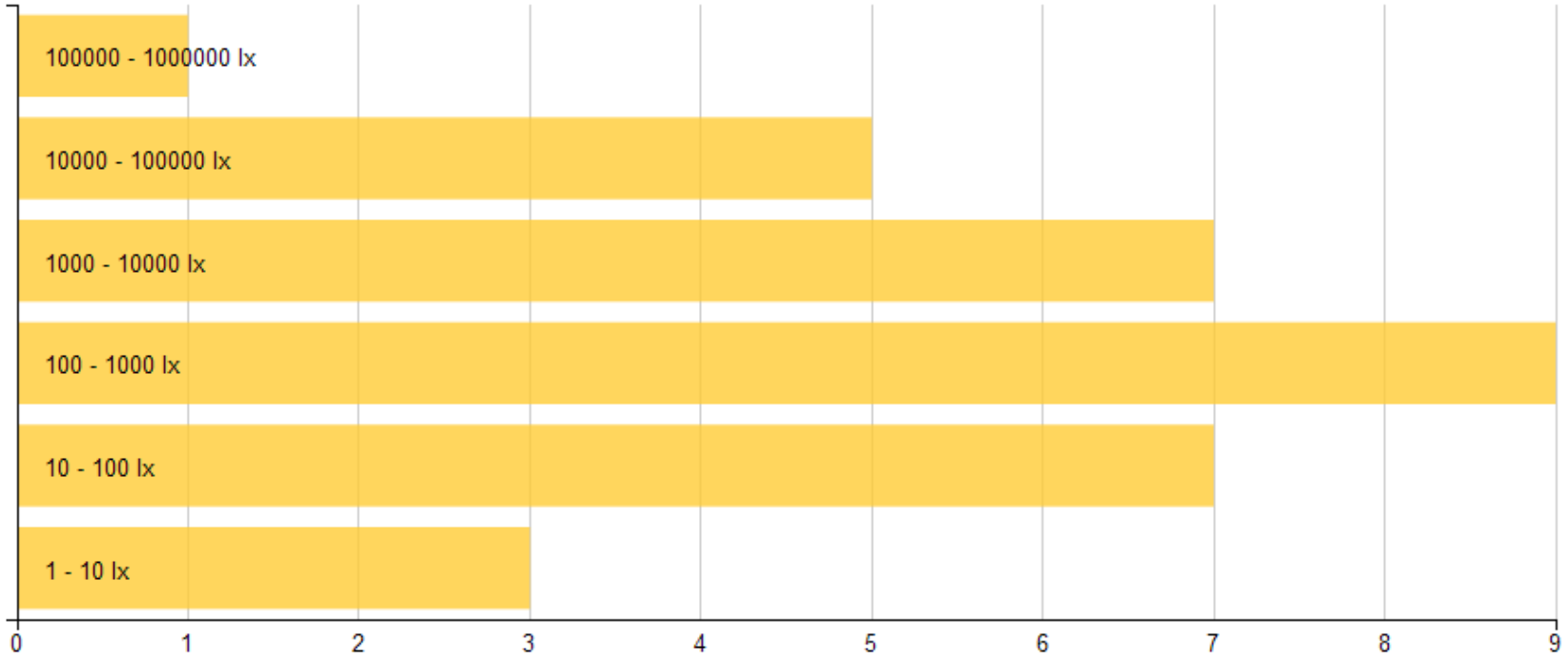


Which temperature units are used

PATENT INSPIRATION

ILLUMINATION (LX)

NANOFIBERS FT (25754 PATENTS)



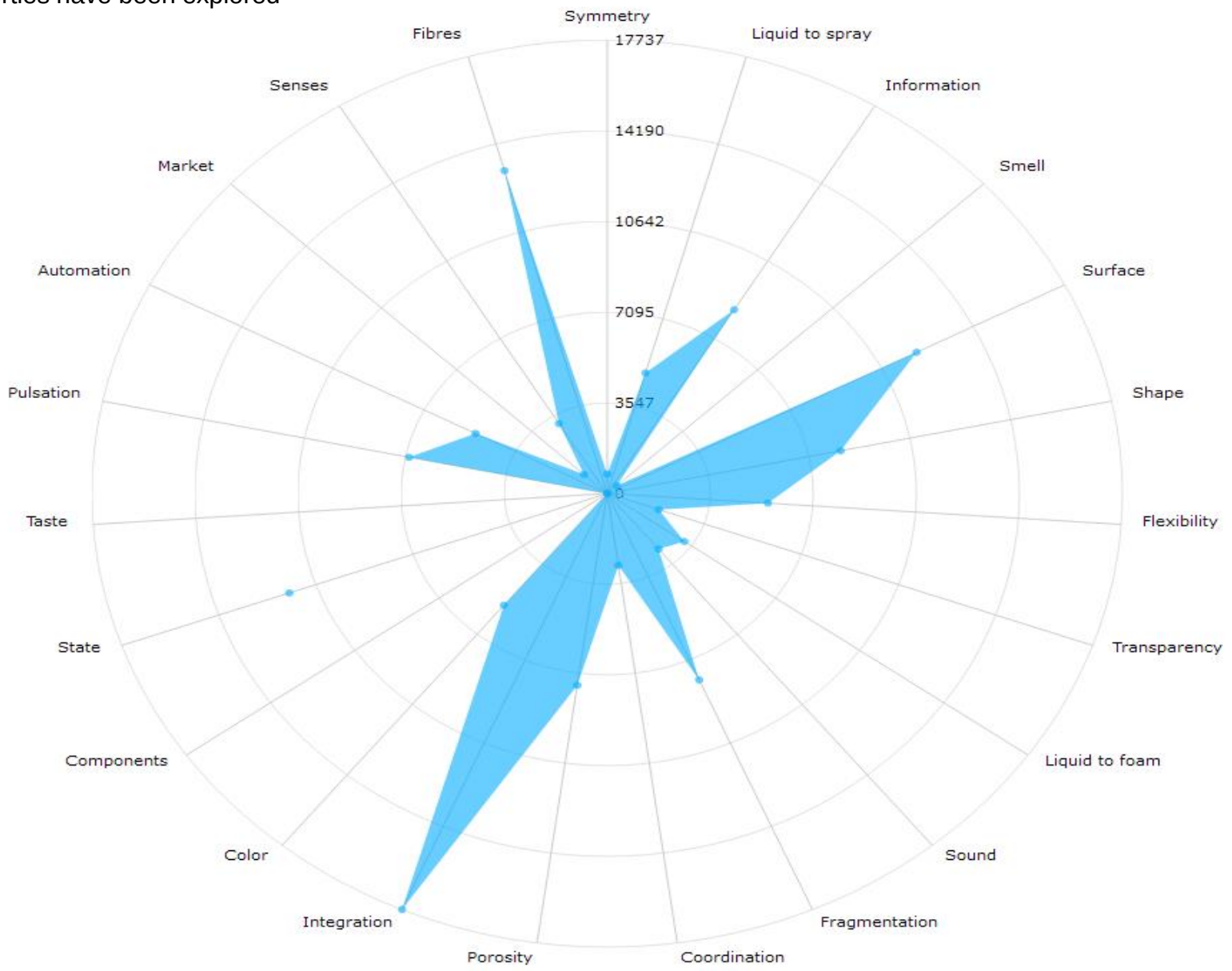
Which illumination units are used

PATENT INSPIRATION

EVOLUTIONARY POTENTIAL

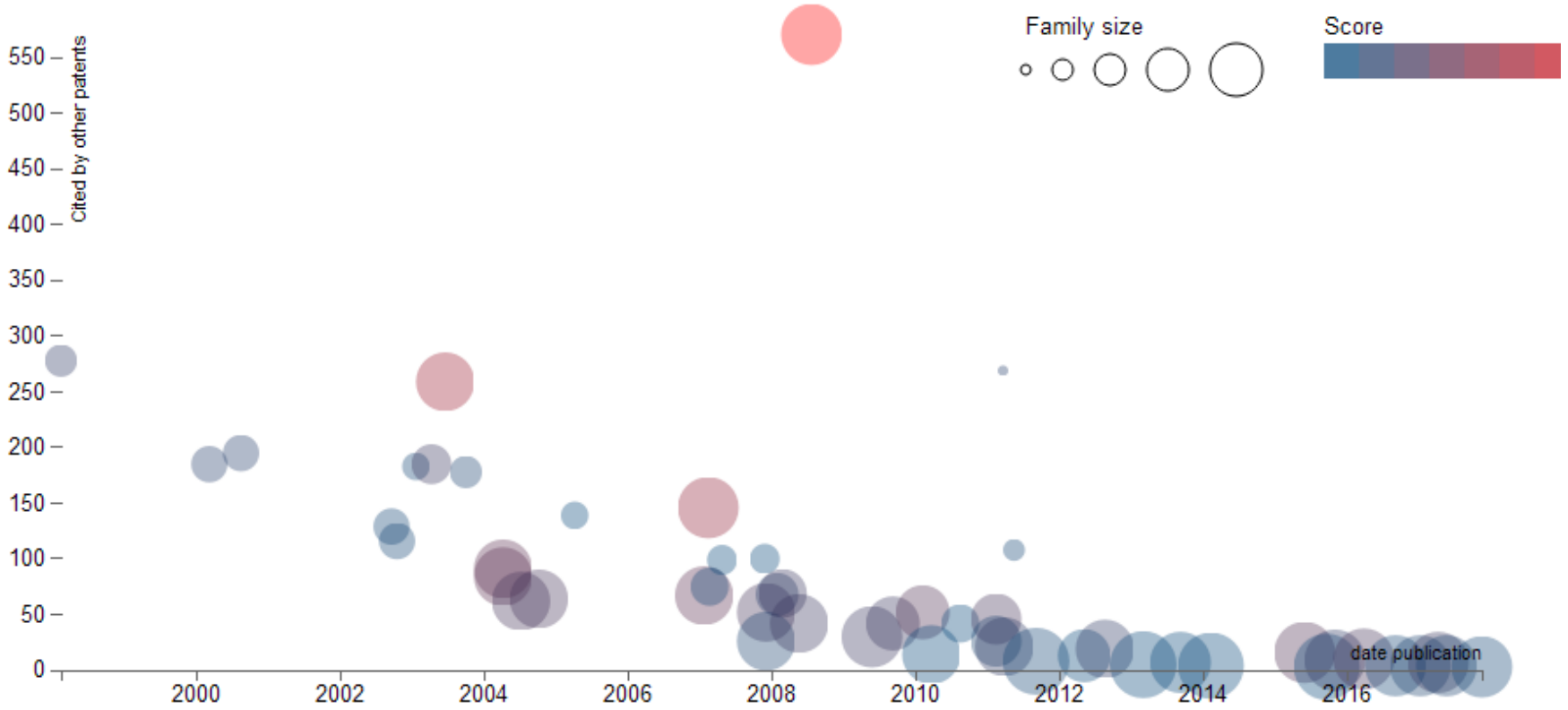
NANOFIBERS FT (25754 PATENTS)

Which properties have been explored



PATENT VALUE

NANOFIBERS FT (25754 PATENTS)



Which patents are most valuable based on recency, family size and foward citations size

PATENT INSPIRATION

SELF

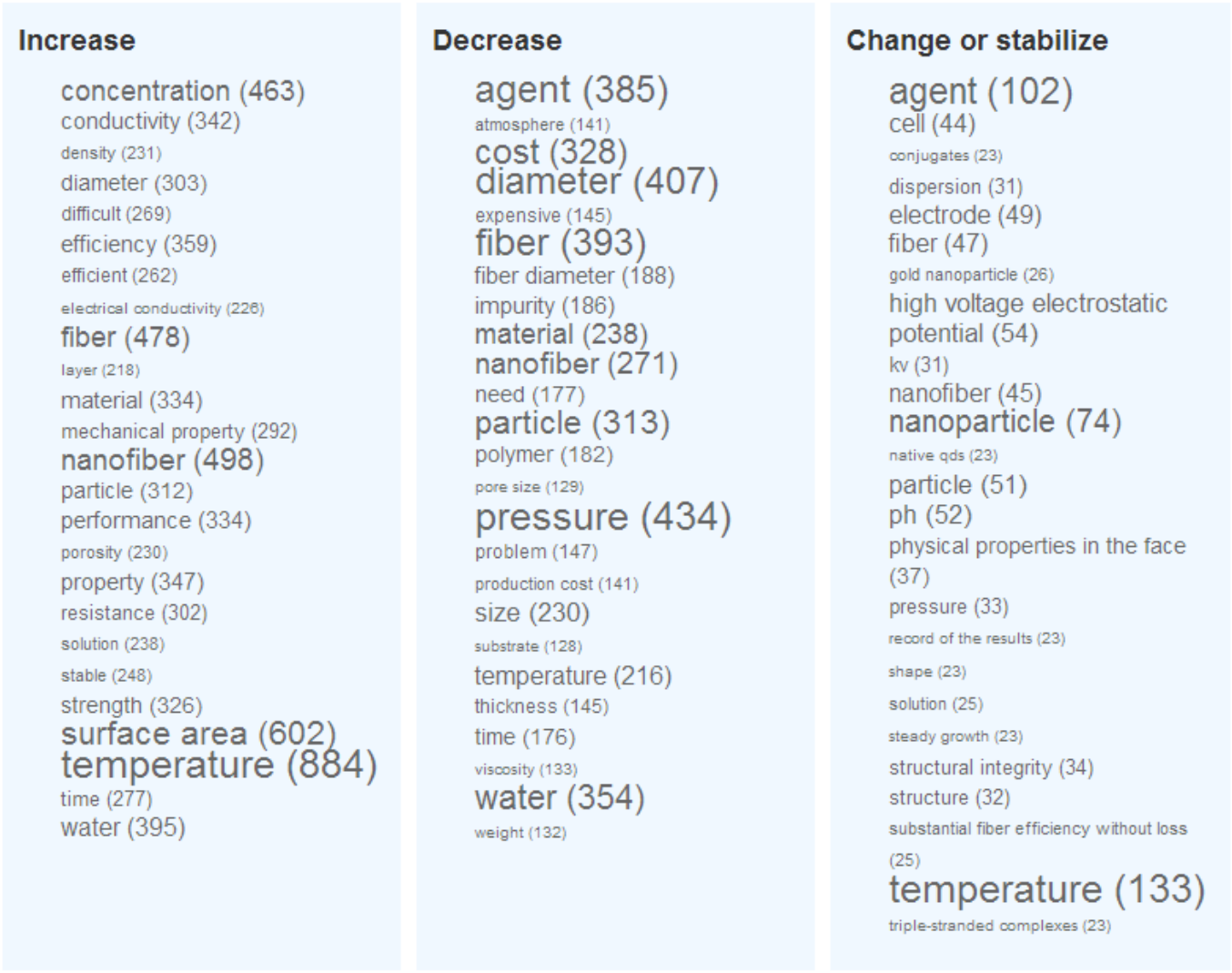
NANOFIBERS FT (25754 PATENTS)

What is done automatically or by itself?

PATENT INSPIRATION

MODIFIER

NANOFIBERS FT (25754 PATENTS)



What is being increased, decreased or stabilised

PATENT INSPIRATION

INCREASES VS APPLICANTS

NANOFIBERS FT (25754 PATENTS)

Who or what versus who or what

DECREASES VS APPLICANTS

NANOFIBERS FT (25754 PATENTS)

Who or what versus who or what

STABILIZES VS APPLICANTS

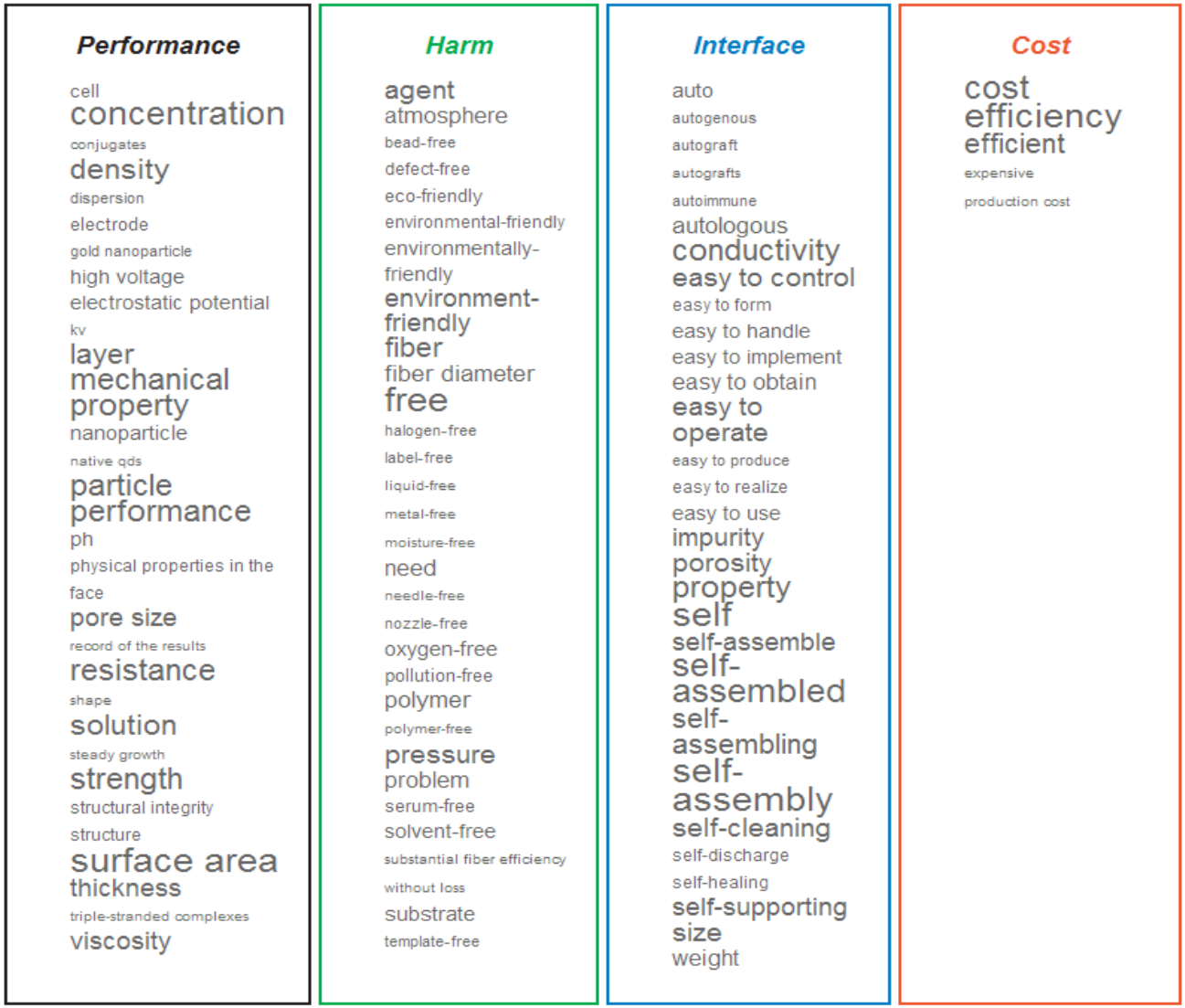
NANOFIBERS FT (25754 PATENTS)

Who or what versus who or what

VALUE EQUATION

NANOFIBERS FT (25754 PATENTS)

Value=P-(H+I+C)



What are the values mentioned in your patents

PATENT INSPIRATION

Thank you for your attention!

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