

Examination Software «E-patent examiner»

World Wide United Patent Space

WW UPS

Content

1. Introduction. Big data and how handle them.
2. Machine learning and natural language processing.
3. Statistics and/or semantics. Successful collaboration.
4. Patent Information Space structure. Evaluation of novelty and industrial applicability
5. «E-patent examiner»: aims, scope and procedure
6. Multidimensional Patent Information Space
7. Patent Information Portrait
8. Unified Patent Information Space: distributed base of knowledge
9. Experiment description: one language, one class
10. Experiment description: one language, patents and open sources
11. Pilot project: bilingual, “cloud”-deployed. (Examination from mobile phone)
12. Conclusions and Future.



1 NEW DEFINITION IS ADDED ON **urban**

1,600+ READS ON **Scribd**

13,000+ HOURS **MUSIC** STREAMING ON **PANDORA**

12,000+ NEW ADS POSTED ON **craigslist**

370,000+ MINUTES VOICE CALLS ON **skype**

98,000+ **TWEETS**



20,000+ NEW POSTS ON **tumblr**

THE LARGEST SOCIAL READING PUBLISHING COMPANY

320+ NEW **twitter** ACCOUNTS

100+ NEW **LinkedIn** ACCOUNTS

13,000+ **iPhone** APPLICATIONS DOWNLOADED



1 associated content
NEW ARTICLE IS PUBLISHED

THE WORLD'S LARGEST COMMUNITY CREATED CONTENT!

QUESTIONS ASKED ON THE INTERNET...

100+ Answers.com
40+ YAHOO! ANSWERS

6,600+ NEW PICTURES ARE UPLOADED ON **flickr**



600+ NEW VIDEOS
YouTube



50+ **WORDPRESS** DOWNLOADS

695,000+ **facebook** STATUS UPDATES



125+ **PLUGIN** DOWNLOADS

25+ HOURS **TOTAL** DURATION

70+ **DOMAINS** REGISTERED

60+ **NEW** BLOGS

168 MILLION **EMAILS** ARE SENT

694,445 **SEARCH** QUERIES

1,700+ **Firefox** DOWNLOADS

79,364 **WALL** POSTS

510,040 **COMMENTS**

1,500+ **BLOG** POSTS



Google

Google Search



Types of tools typically used in Big Data Scenario

- Where is the processing hosted?
 - Distributed server/cloud
- Where data is stored?
 - Distributed Storage (eg: Amazon s3)
- Where is the programming model?
 - Distributed processing (Map Reduce)
- How data is stored and indexed?
 - High performance schema free database
- What operations are performed on the data?
 - Analytic/Semantic Processing (Eg. RDF/OWL)

Natural Language Processing

Spam detection

Let's go to Agra! ✓

Buy V1AGRA ... ✗

Sentiment analysis

Best roast chicken in San Francisco! 👍

The waiter ignored us for 20 minutes. 👎

Parsing

I can see Alcatraz from the window!

Machine translation (MT)

第13届上海国际电影节开幕...

The 13th Shanghai International Film Festival...

Named entity recognition (NER)

PERSON ORG LOC

Einstein met with UN officials in Princeton

Information extraction (IE)

You're invited to our dinner party, Friday May 27 at 8:30

Party
May 27
add

Question answering (QA)

Q. How effective is ibuprofen in reducing fever in patients with acute febrile illness?

Summarization

The Dow Jones is up

The S&P500 jumped

Housing prices rose

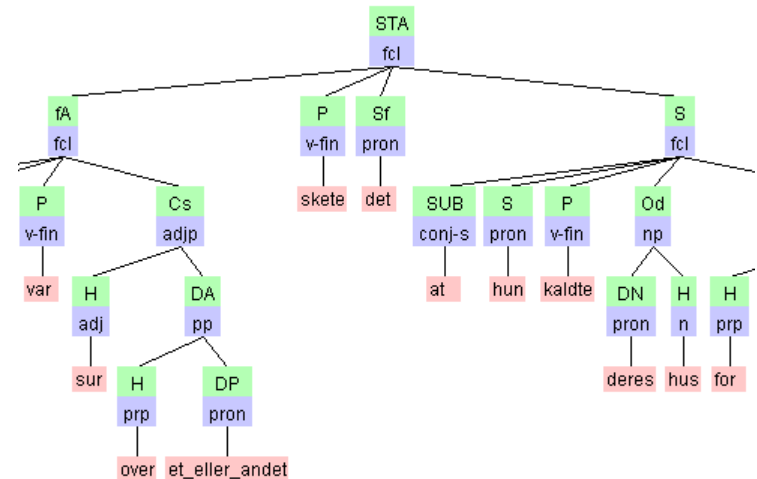
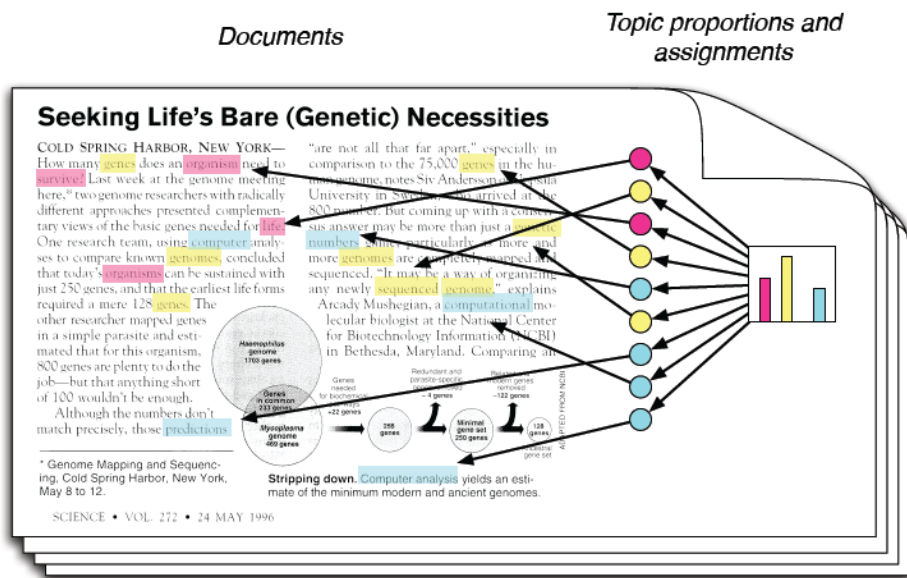
Economy is good

Dialog

Where is Citizen Kane playing in SF?

Castro Theatre at 7:30. Do you want a ticket?

Statistics and/or semantics. Successful collaboration

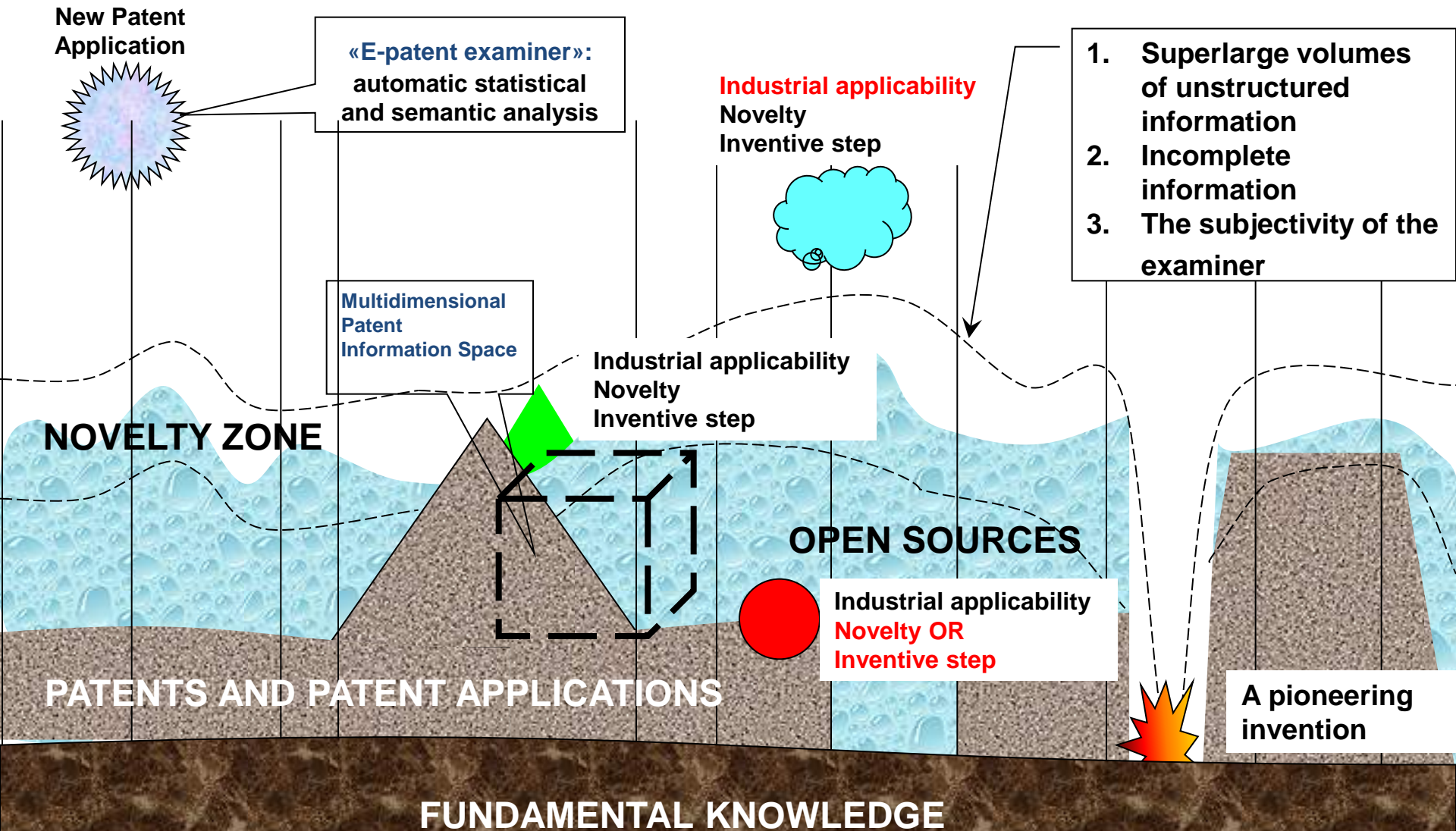


Topics

gene	0.04	life	0.02	brain	0.04	data	0.02
dna	0.02	evolve	0.01	neuron	0.02	number	0.02
genetic	0.01	organism	0.01	nerve	0.01	computer	0.01
...		



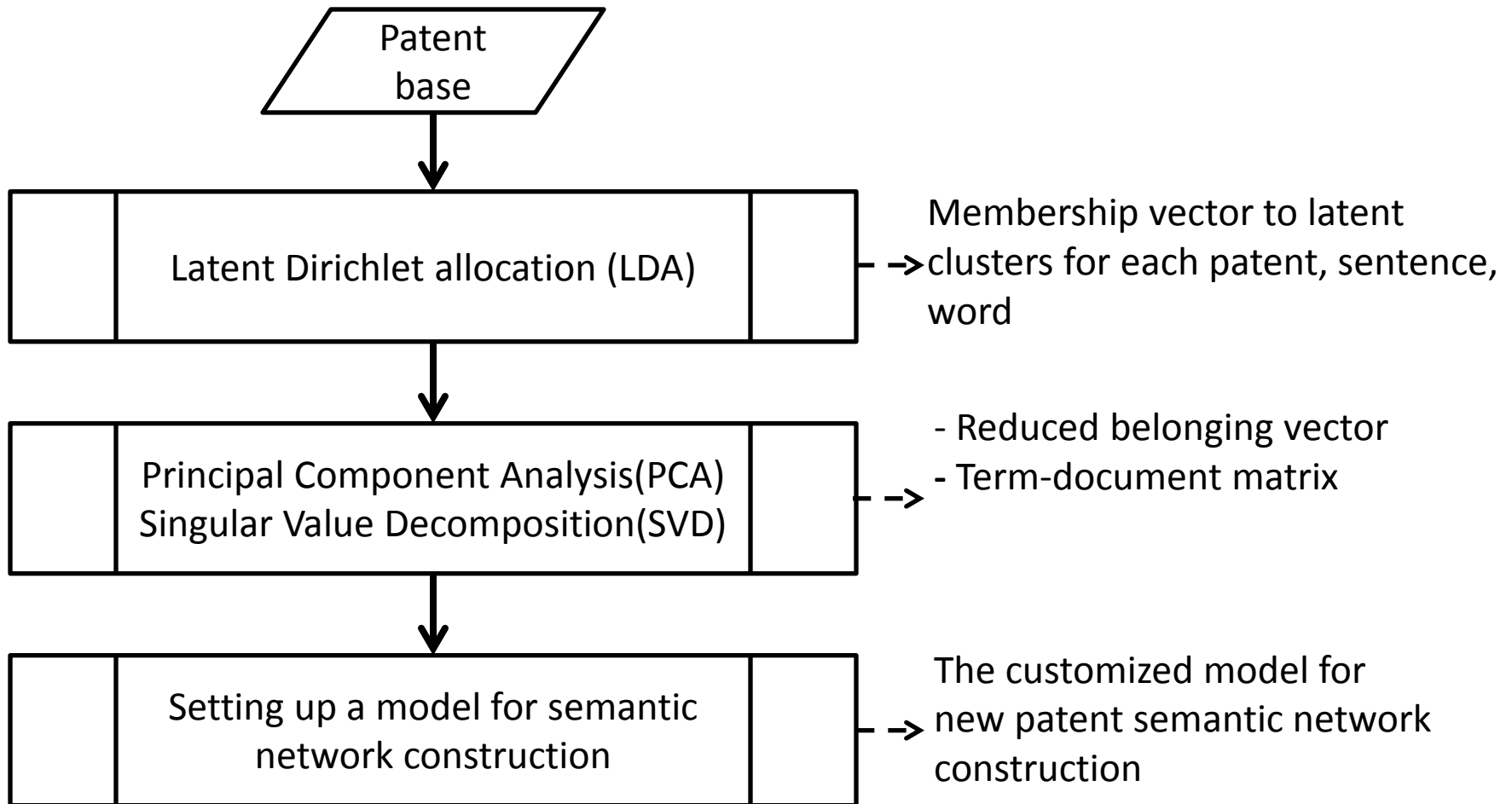
Patent Information Space three-layer structure



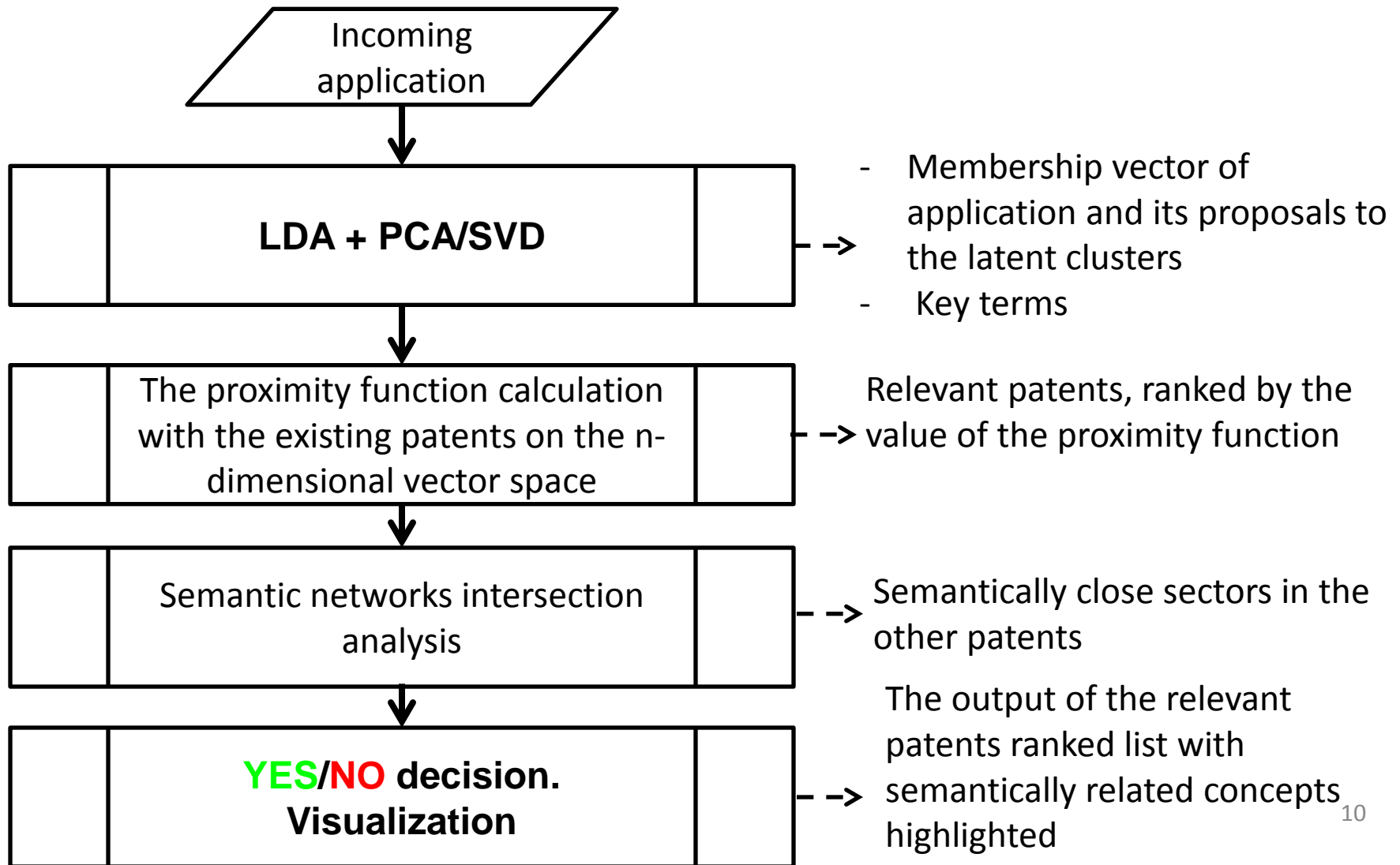
«E-patent examiner» procedure

- New Patent Application (NPA) input
- Automatic topics of NPA statistical profile positioning at the Patent Information Space
- Establishing the sub-network of relevant documents by statistical profiles
- Sub-network semantic analysis to complete the visualization and to make conclusions about:
 - Novelty;
 - Industrial applicability;
 - Inventive step;
 - A pioneering invention.

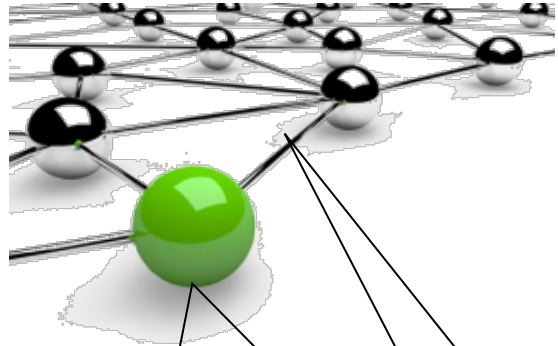
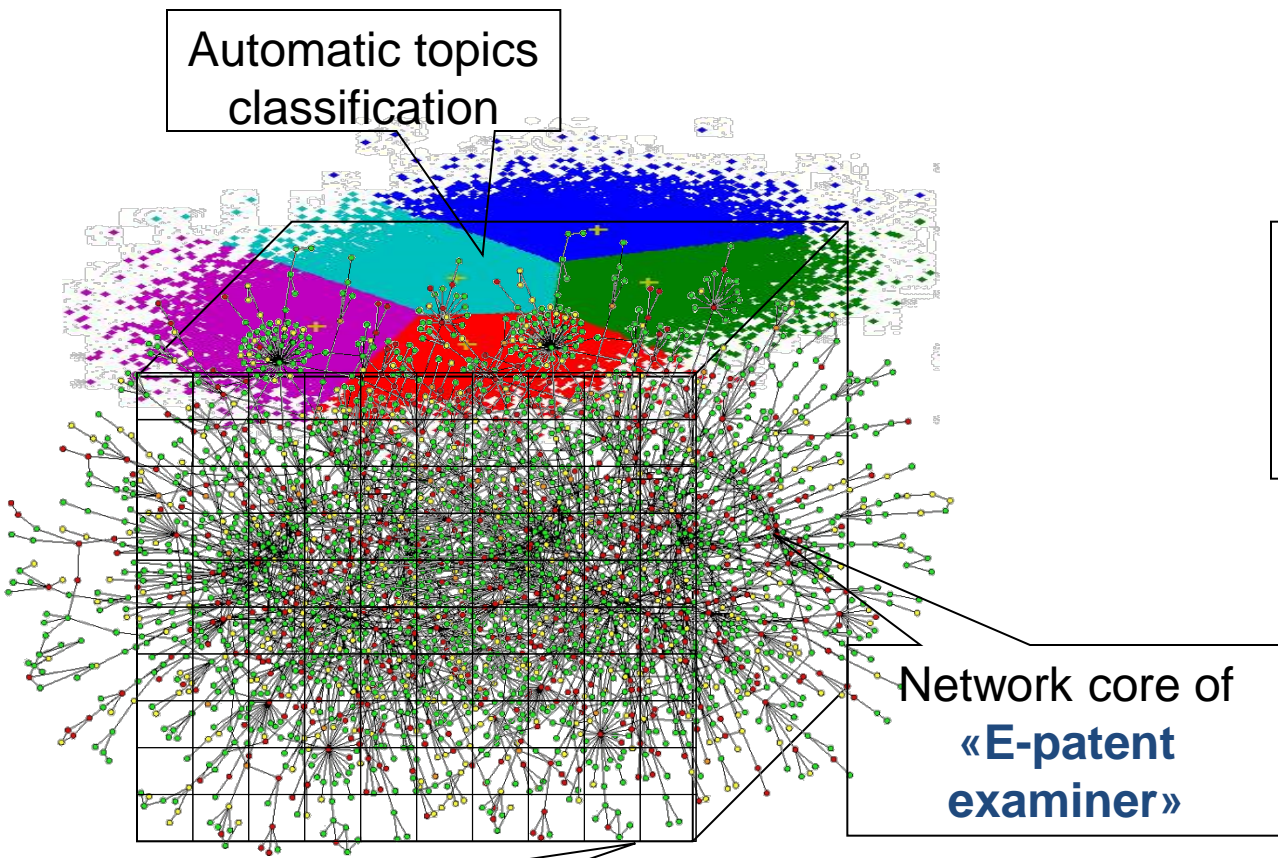
The processing algorithm for the existing patent base



NPA processing algorithm



Multidimensional Patent Information Space

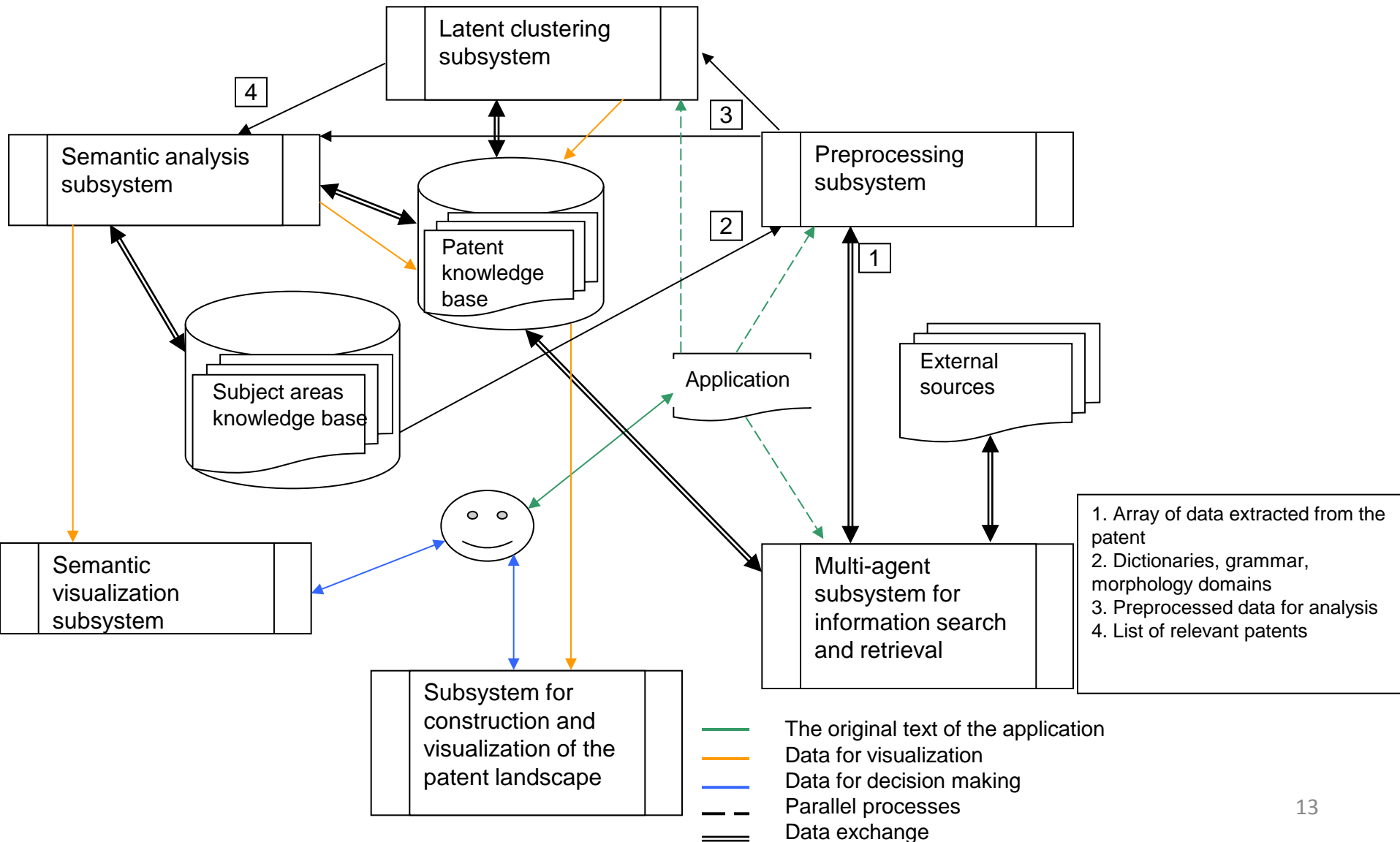


Node:
statistic profile ⊕
semantic profile ⊕ source meta-data

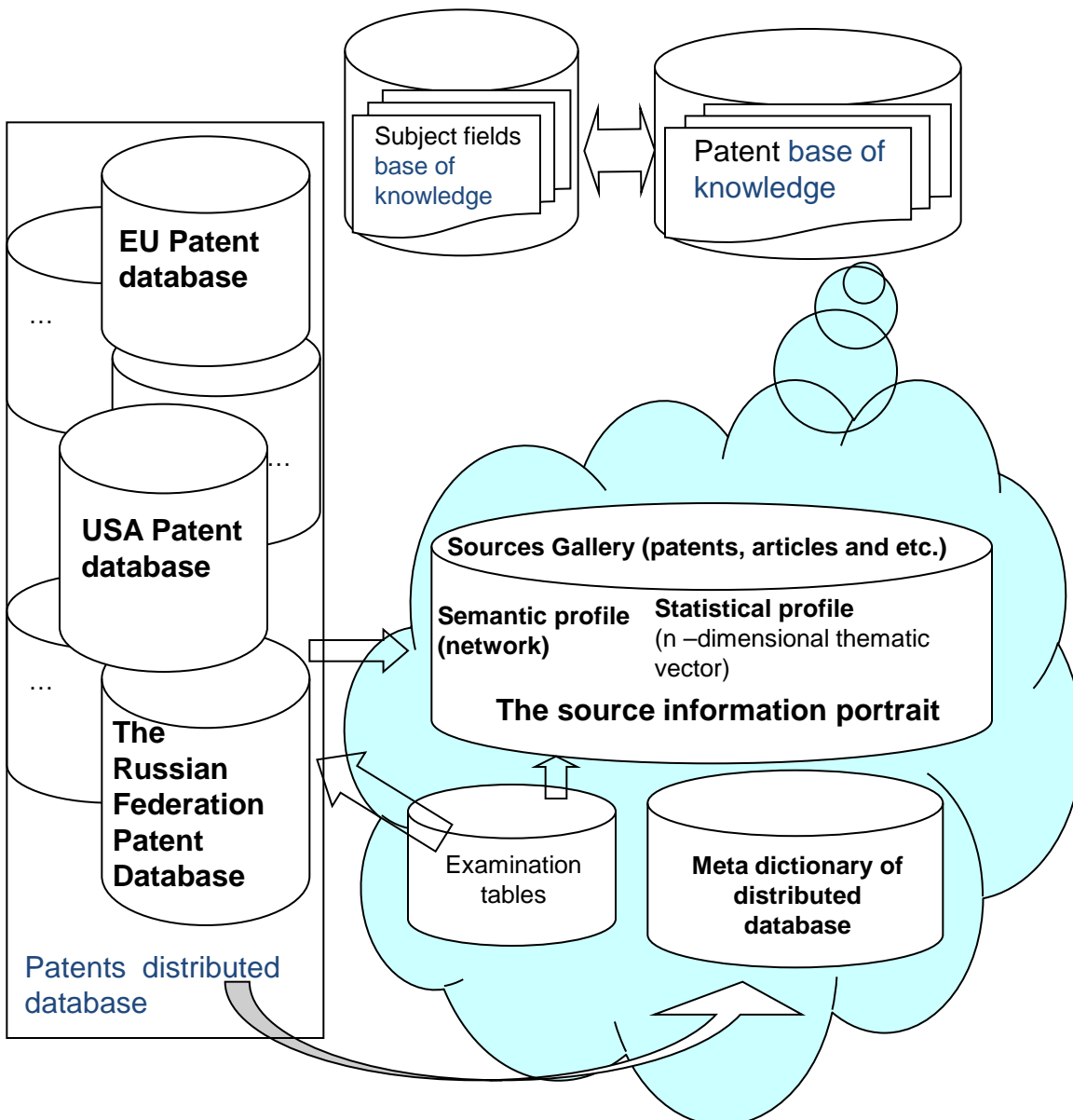
Relation:
statistic measure of proximity ⊗
semantic networks intersection proportion

International patent classification

Implementation. Architecture.



The examination decision making support system: distributed base of knowledge



Is it necessary to use unified database format?

Digital portrait: **database format independence**

Is it necessary to use common language?

Statistical processing: **language independence**

Is it necessary to use common patent classification?

Automatic topics: **patent classifiers independence**

Are any special technical requirements?

“Cloud” and distributed architecture: **No high technical requirements**

Visualized tips for expert for finding the intersections with other patents

Рабочий орган дискового орудия, выполненный в виде вырезного сферического диска со стойкой и подшипниковым узлом, причем диск выполнен с перфорацией по периметру в форме окружности и симметричным смещением от вырезов, отличающийся тем, что с обратной стороны диска в зоне перфорации установлен подпружиненный обводной выталкиватель

Comment [D1]: [RU 24344552 C1](#)
[SU 13333442 A1](#)

Comment [D2]: [US 4330041 A](#)

Experiment description: one language, one class

- 52.000 Russian foodstuffs patents
- 240 topics
- 1000 iterations
- all patents are preprocessed
- titles, abstracts and claims are used as input for LDA

Experiment description: one language, one class.

Semantic analysis of patent descriptions

- Original patent:** PRODUCTION METHOD OF CANNED "Heart stewed in tomato sauce" RU 02461231 C1

- Invention formula**

A method of producing canned "Heart stewed in tomato sauce ", providing prescription components preparation, cutting and saute in bone fat onion and mix it with the bone fat, tomato paste , sugar, salt, red hot pepper and bay leaf from the sauce , cut the heart, packaging of the heart and sauce sealing and sterilization , **characterized in that** the sauce additionally introduced sunflower flour before mixing onions milled sunflower flour poured water and allowed to swell , and components used in the following proportions costs ...

Semantic analysis for the relevant patent description

- Relevant patent:** PRODUCTION METHOD OF CANNED "HEART IN RED SAUCE MAINLY with sauerkraut" SPECIAL PURPOSE (OPTIONS)

- RU 2300918 C1

- Invention formula**

... production method for canned "Heart in red sauce with mostly cabbage " special purpose provides for the preparation of prescription components , cutting, frying in ghee and grinding on grinder heart, shredder , freezing and grinding on grinder with fresh cabbage , cut , saute in ghee grinder and grinding on carrots, parsley root and onion , rubbing garlic saute wheat flour , mixing these components with the bone broth, tomato paste , sugar, table salt , citric acid and extracts of biomass micromicetes , bitter black pepper and bay leaf to give the sauce , filling the mixture into the aluminum tube next flow components ...

Experiment description: one language, patents and open sources

- Amount of documents: 33000.
- Evaluation — a way close to expert assessment:
 - Allocate a list of references for each patent.
 - Select ones, which refer at least once to the patents from base, m - the number of such references.
 - For each of them to find similar patents: n .
 - Search quality for a patent: n / m , if the first 20 found n similar patents.
 - 100 topic, 1000 iterations.
- Result:
 - Porter Stemmer: **72.4%**,
 - AOT.ru Stemmer : **78.3%**.

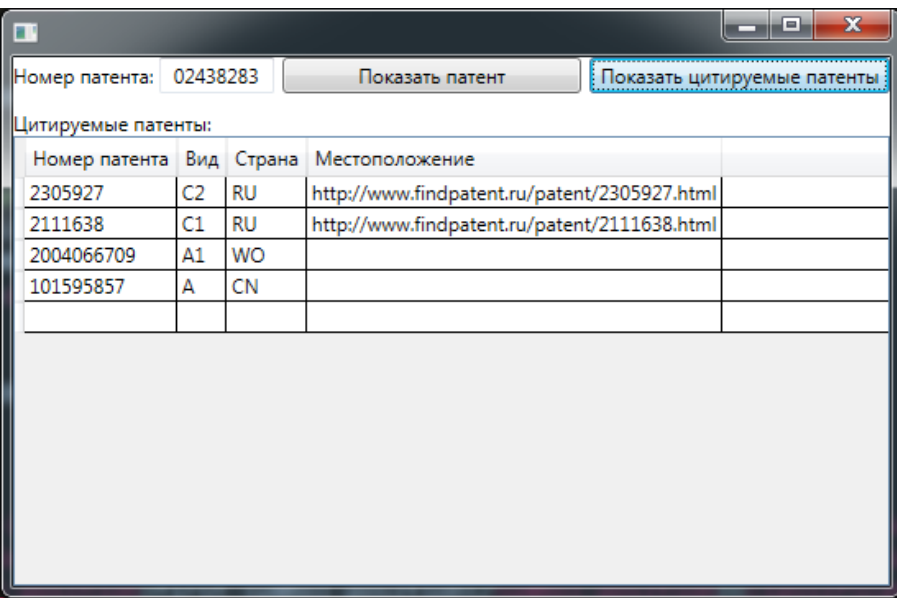
Building of Patent Information Space

- Experimental database fragment:
33000 patents
- Statistical profiles building time: **7 hours**
- **100 topics, 1000 iterations**
- Office PC
- 78.57 documents per 1 minute**

Experiment description: one language, patents and open sources

Patent RU2420504 C2

- 30 issued patents as examples of NPA
- 64 top links to patents from Russian Federation patent database, patft.uspto.gov, findpatent.ru
- 50 topics, 10 iterations
- Result
 - 100% experts found links
 - 12 additional relevant links



Examiner	«E-PATENT EXAMINER»
US 20010051686 A1, US 4334113, US 4225743, WO 2004/091555 A2, FR 2792328 A, US 5525344 A1 US 4520008 A, RU 2002118593 A	RU 2002118593 A US 20010051686 A1, US 4225743, FR 2792328 A, WO 2004/091555 A2, US 5525344 A1 US 4334113, US 4520008 A, US 20090270550 A1

Cited patents search module

Pilot project: bilingual, “cloud”-deployed

EP-1197998-A2

Invention-title: Antireflective porogens.

Applicants: SEIKO EPSON CORP.

Claim: The porous organo polysilica dielectric matrix materials of the present invention are particularly suitable for use electronic device manufacture, such as in integrated circuit manufacture.

Thus, the present invention provides a method of manufacturing an electronic device including the steps of:

- a) disposing on the substrate a B-staged organo polysilica dielectric material including porogen;
- b) curing the B-staged organo polysilica dielectric material to form an organo polysilica dielectric matrix material without substantially degrading the porogen;
- c) thereafter subjecting the organo polysilica dielectric matrix material to conditions which at least partially remove the porogen to form a porous organo polysilica dielectric material without substantially degrading the organo polysilica dielectric material, wherein the porogen includes one or more chromophores.

Pilot project: bilingual, “cloud”-deployed

EP-1260991-A1

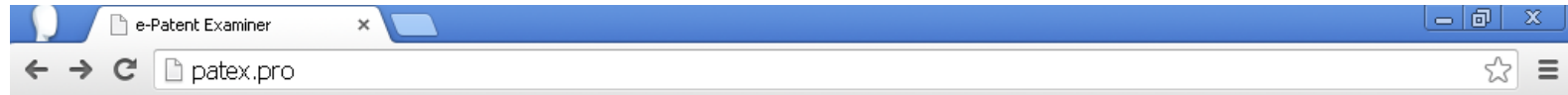
Invention-title: Porous materials.

Applicants: SHIPLEY CO LLC.

A method of manufacturing a porous organo polysilica dielectric material suitable for use in electronic device manufacture comprising the steps of:

- a) dispersing a plurality of removable polymeric porogen particles in a B-staged organo polysilica dielectric material;
- b) curing the B-staged organo polysilica dielectric material to form a dielectric matrix material without substantially degrading the porogen particles;
- c) subjecting the organo polysilica dielectric matrix material to conditions which at least partially remove the porogen to form a porous dielectric material without substantially degrading the organo polysilica dielectric material, wherein the porogen is substantially compatible with the B-staged organo polysilica dielectric material, wherein the porogen comprises as polymerized units at least one compound selected from silyl containing monomers or poly(alkylene oxide) monomers, wherein the dielectric material is 30% porous, wherein the mean particle size of the plurality of porogen particles is selected to provide a closed cell pore structure.

Pilot project: bilingual, “cloud”-deployed. NPA input



e-Patent Examiner

Main IPC Class Patent Office:

A fuel cell system comprising a plurality of fuel cells, in particular in the form of low temperature fuel cells, which are assembled into a stack, the system having a cathode side with a cathode inlet and a cathode outlet, with oxygen or an oxygen containing gas, such as for example air, being capable of being supplied to the cathode inlet and also having an anode side which has an anode inlet and

The present invention relates to a fuel cell system comprising a plurality of fuel cells, in particular in the form of low temperature fuel cells, which are assembled into a stack, the system having a cathode side with a cathode inlet and a cathode outlet, with oxygen or an oxygen containing gas, such as for example air, being capable of being supplied to the cathode inlet and also having an anode

1. A fuel cell system comprising a plurality of fuel cells, in particular in the form of low temperature fuel cells, which are assembled into a stack and are adapted to permit oxygen or an oxygen containing gas to react with hydrogen or a hydrogen containing gas to generate electricity and produce first exhaust gases containing residual oxygen and second exhaust gases containing residual

Examine

Pilot project: bilingual, “cloud”-deployed.

Decision **NO**



The screenshot shows a web browser window with the title "e-Patent Examiner" and the URL "patex.pro/query/580". The main heading is "e-Patent Examiner". Below the heading, the text "Country: US, IPC Class: N/A" is displayed. A red text label "Should grant: NO" is shown. The main content area contains two paragraphs of text describing a fuel cell system.

Country: US, IPC Class: N/A

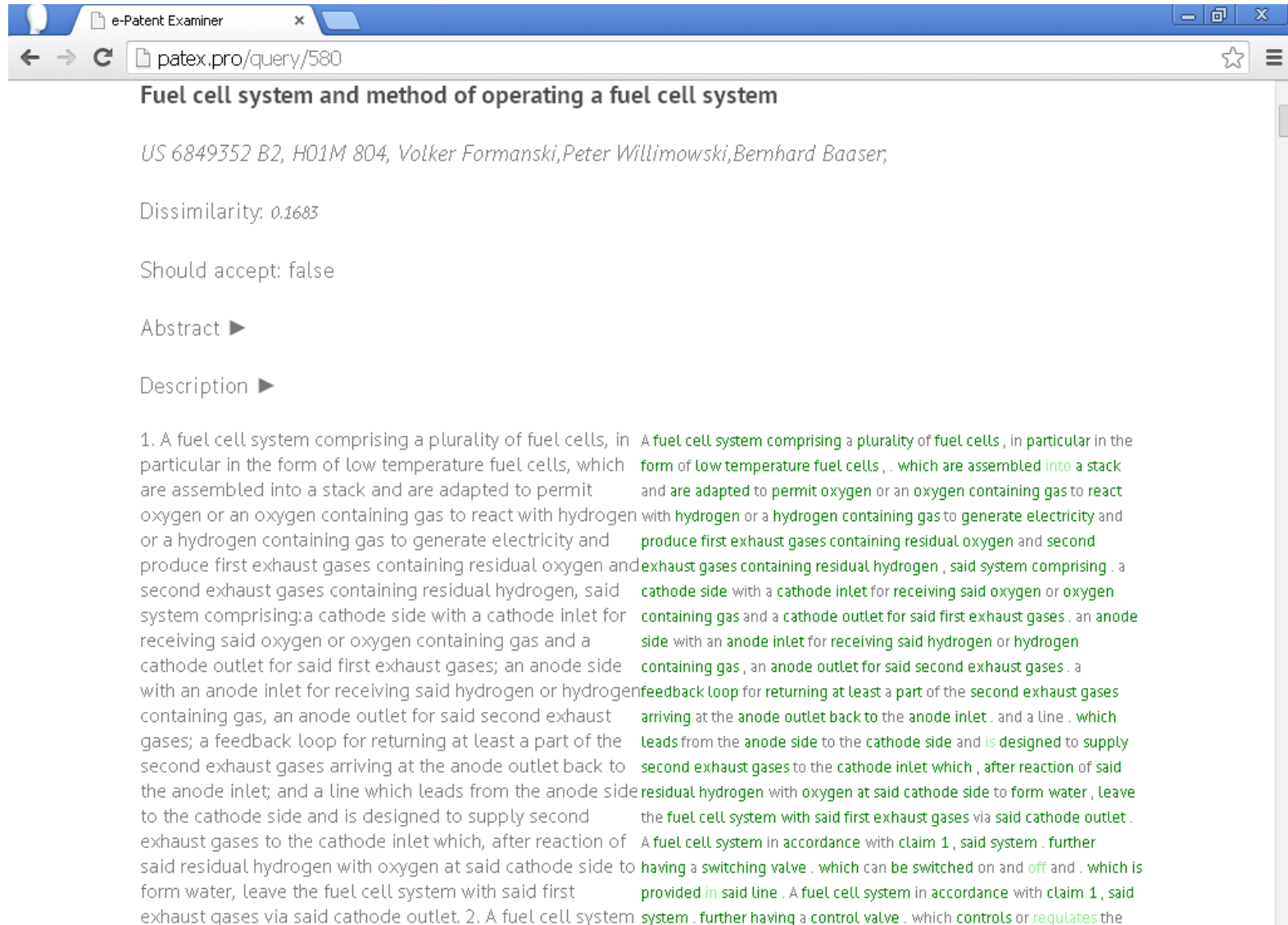
Should grant: NO

A fuel cell system comprising a plurality of fuel cells, in particular in the form of low temperature fuel cells, which are assembled into a stack, the system having a cathode side with a cathode inlet and a cathode outlet, with oxygen or an oxygen containing gas, such as for example air, being capable of being supplied to the cathode inlet and also having an anode side which has an anode inlet and an anode outlet, with hydrogen or a hydrogen rich gas being capable of being supplied to the anode inlet and with a feedback loop being provided in order to return at least a part of the hydrogen containing exhaust gases which arise at the anode outlet back to the anode inlet, characterized by a line which leads from the anode side to the cathode side and is designed to supply anode exhaust gases to the cathode inlet which, after reaction of the hydrogen component with oxygen at the cathode side to form water, leave the fuel cell system with the cathode exhaust gases via the cathode outlet.

The present invention relates to a fuel cell system comprising a plurality of fuel cells, in particular in the form of low temperature fuel cells, which are assembled into a stack, the system having a cathode side with a cathode inlet and a cathode outlet, with oxygen or an oxygen containing gas, such as for example air, being capable of being supplied to the cathode inlet and also having an anode side which has an anode inlet and an anode outlet, with hydrogen or a hydrogen rich gas being capable of being

Pilot project: bilingual, “cloud”-deployed.

Explanation of the decision



The screenshot shows a web browser window with the address bar containing 'patex.pro/query/580'. The page title is 'Fuel cell system and method of operating a fuel cell system'. Below the title, the patent number 'US 6849352 B2, H01M 804' and inventors 'Volker Formanski, Peter Willimowski, Bernhard Baaser' are listed. The page includes a 'Dissimilarity: 0.1683' value and a 'Should accept: false' status. There are expandable sections for 'Abstract' and 'Description'. The 'Description' section contains two columns of text, with the right column appearing to be a translation or a detailed description of the fuel cell system.

Fuel cell system and method of operating a fuel cell system

US 6849352 B2, H01M 804, Volker Formanski, Peter Willimowski, Bernhard Baaser,

Dissimilarity: 0.1683

Should accept: false

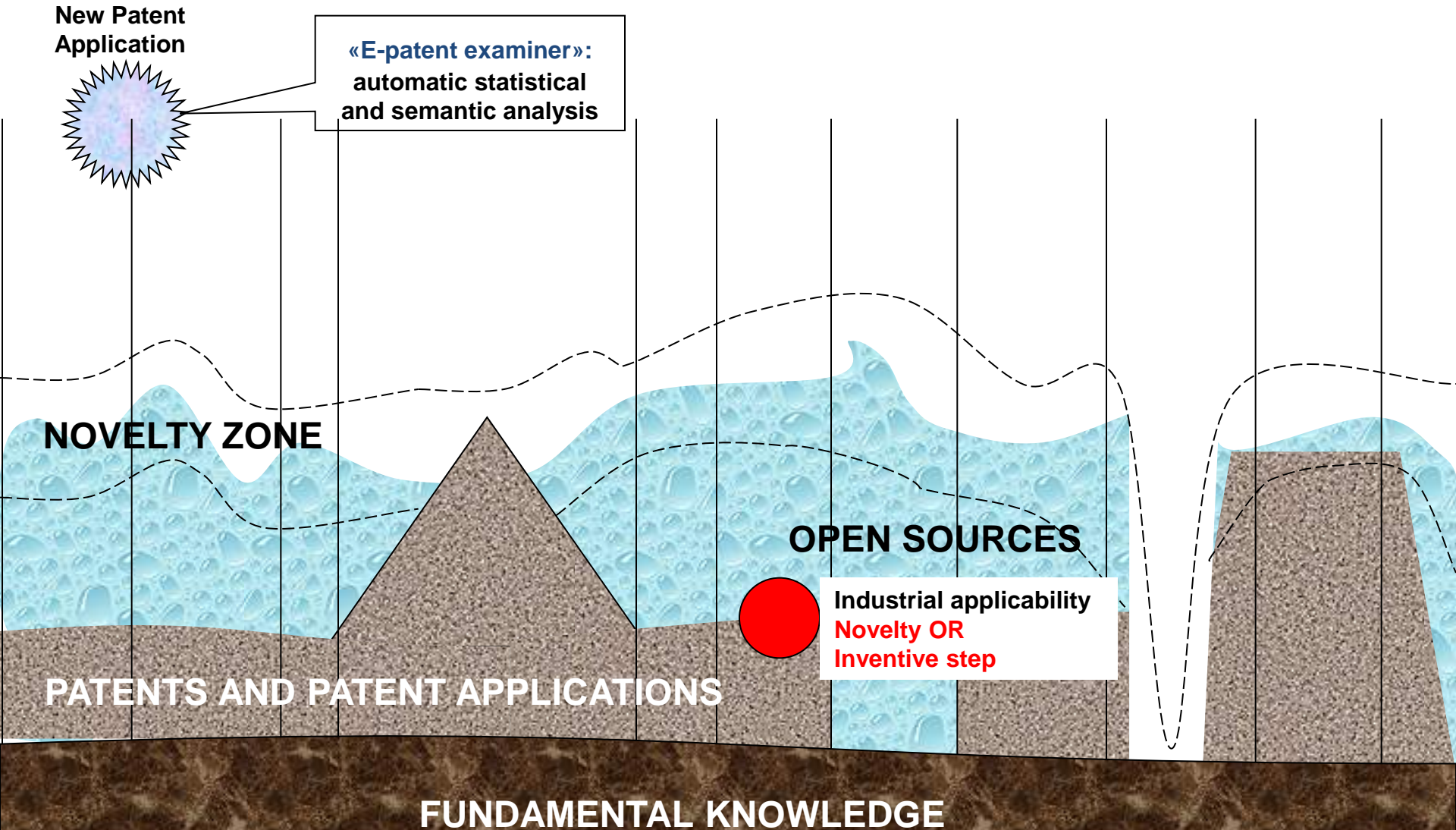
Abstract ►

Description ►

1. A fuel cell system comprising a plurality of fuel cells, in particular in the form of low temperature fuel cells, which are assembled into a stack and are adapted to permit oxygen or an oxygen containing gas to react with hydrogen or a hydrogen containing gas to generate electricity and produce first exhaust gases containing residual oxygen and second exhaust gases containing residual hydrogen, said system comprising: a cathode side with a cathode inlet for receiving said oxygen or oxygen containing gas and a cathode outlet for said first exhaust gases; an anode side with an anode inlet for receiving said hydrogen or hydrogen containing gas, an anode outlet for said second exhaust gases; a feedback loop for returning at least a part of the second exhaust gases arriving at the anode outlet back to the anode inlet; and a line which leads from the anode side to the cathode side and is designed to supply second exhaust gases to the cathode inlet which, after reaction of said residual hydrogen with oxygen at said cathode side to form water, leave the fuel cell system with said first exhaust gases via said cathode outlet. 2. A fuel cell system

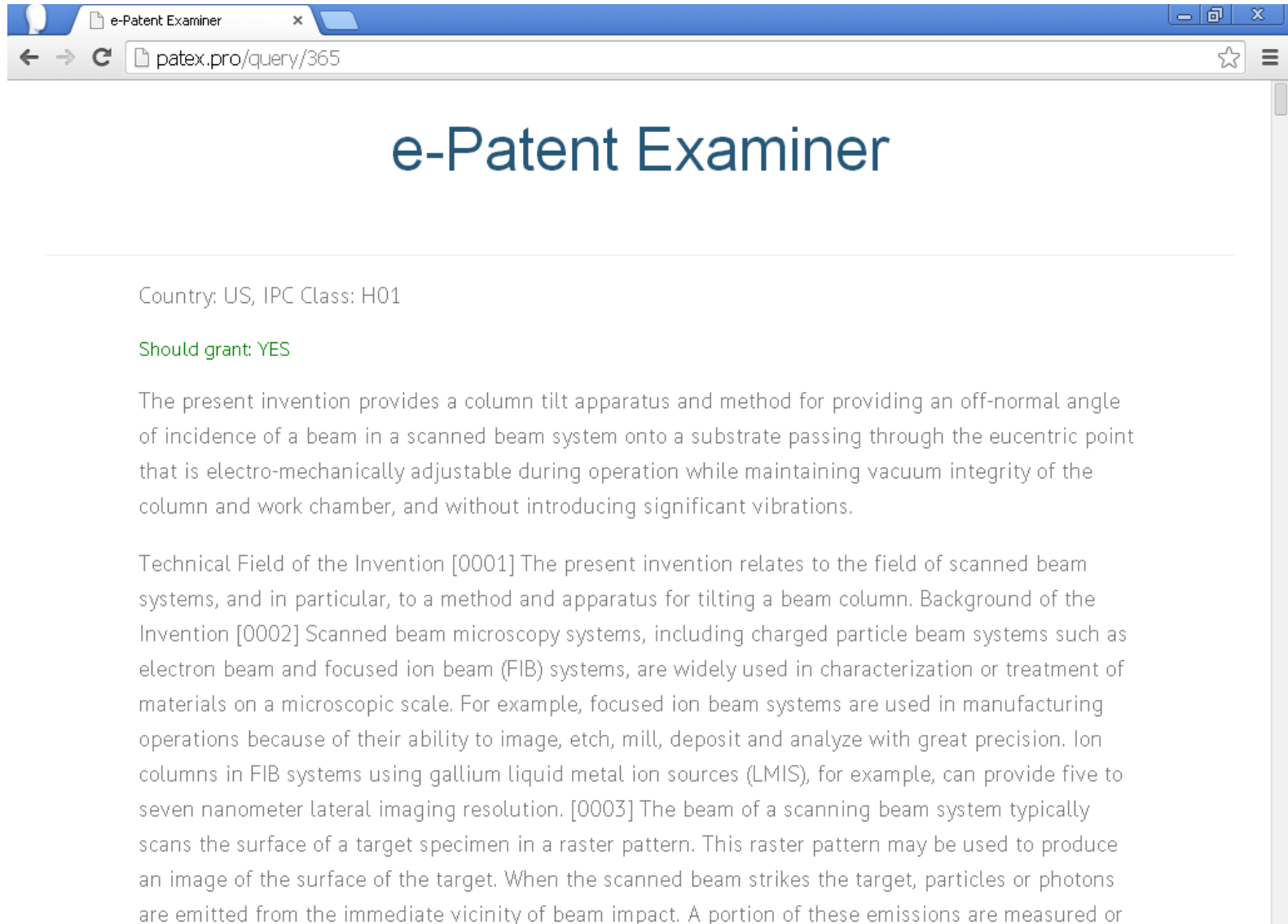
A fuel cell system comprising a plurality of fuel cells, in particular in the form of low temperature fuel cells, which are assembled into a stack and are adapted to permit oxygen or an oxygen containing gas to react with hydrogen or a hydrogen containing gas to generate electricity and produce first exhaust gases containing residual oxygen and second exhaust gases containing residual hydrogen, said system comprising: a cathode side with a cathode inlet for receiving said oxygen or oxygen containing gas and a cathode outlet for said first exhaust gases; an anode side with an anode inlet for receiving said hydrogen or hydrogen containing gas, an anode outlet for said second exhaust gases; a feedback loop for returning at least a part of the second exhaust gases arriving at the anode outlet back to the anode inlet; and a line which leads from the anode side to the cathode side and is designed to supply second exhaust gases to the cathode inlet which, after reaction of said residual hydrogen with oxygen at said cathode side to form water, leave the fuel cell system with said first exhaust gases via said cathode outlet. A fuel cell system in accordance with claim 1, said system further having a switching valve which can be switched on and off and which is provided in said line. A fuel cell system in accordance with claim 1, said system further having a control valve which controls or regulates the

Patent Information Space three-layer structure



Pilot project: bilingual, “cloud”-deployed.

Decision **YES**



Country: US, IPC Class: H01

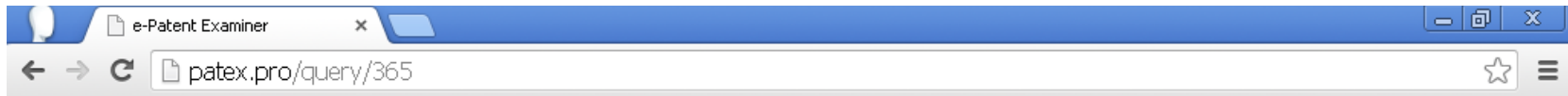
Should grant: YES

The present invention provides a column tilt apparatus and method for providing an off-normal angle of incidence of a beam in a scanned beam system onto a substrate passing through the eucentric point that is electro-mechanically adjustable during operation while maintaining vacuum integrity of the column and work chamber, and without introducing significant vibrations.

Technical Field of the Invention [0001] The present invention relates to the field of scanned beam systems, and in particular, to a method and apparatus for tilting a beam column. Background of the Invention [0002] Scanned beam microscopy systems, including charged particle beam systems such as electron beam and focused ion beam (FIB) systems, are widely used in characterization or treatment of materials on a microscopic scale. For example, focused ion beam systems are used in manufacturing operations because of their ability to image, etch, mill, deposit and analyze with great precision. Ion columns in FIB systems using gallium liquid metal ion sources (LMIS), for example, can provide five to seven nanometer lateral imaging resolution. [0003] The beam of a scanning beam system typically scans the surface of a target specimen in a raster pattern. This raster pattern may be used to produce an image of the surface of the target. When the scanned beam strikes the target, particles or photons are emitted from the immediate vicinity of beam impact. A portion of these emissions are measured or

Pilot project: bilingual, “cloud”-deployed.

Explanation of the decision



Ion beam utilization during scanned ion implantation

US 6953942 B1 H01J037/302 Michael A. Graf, Andrew M. Ray

Dissimilarity: 2.2206

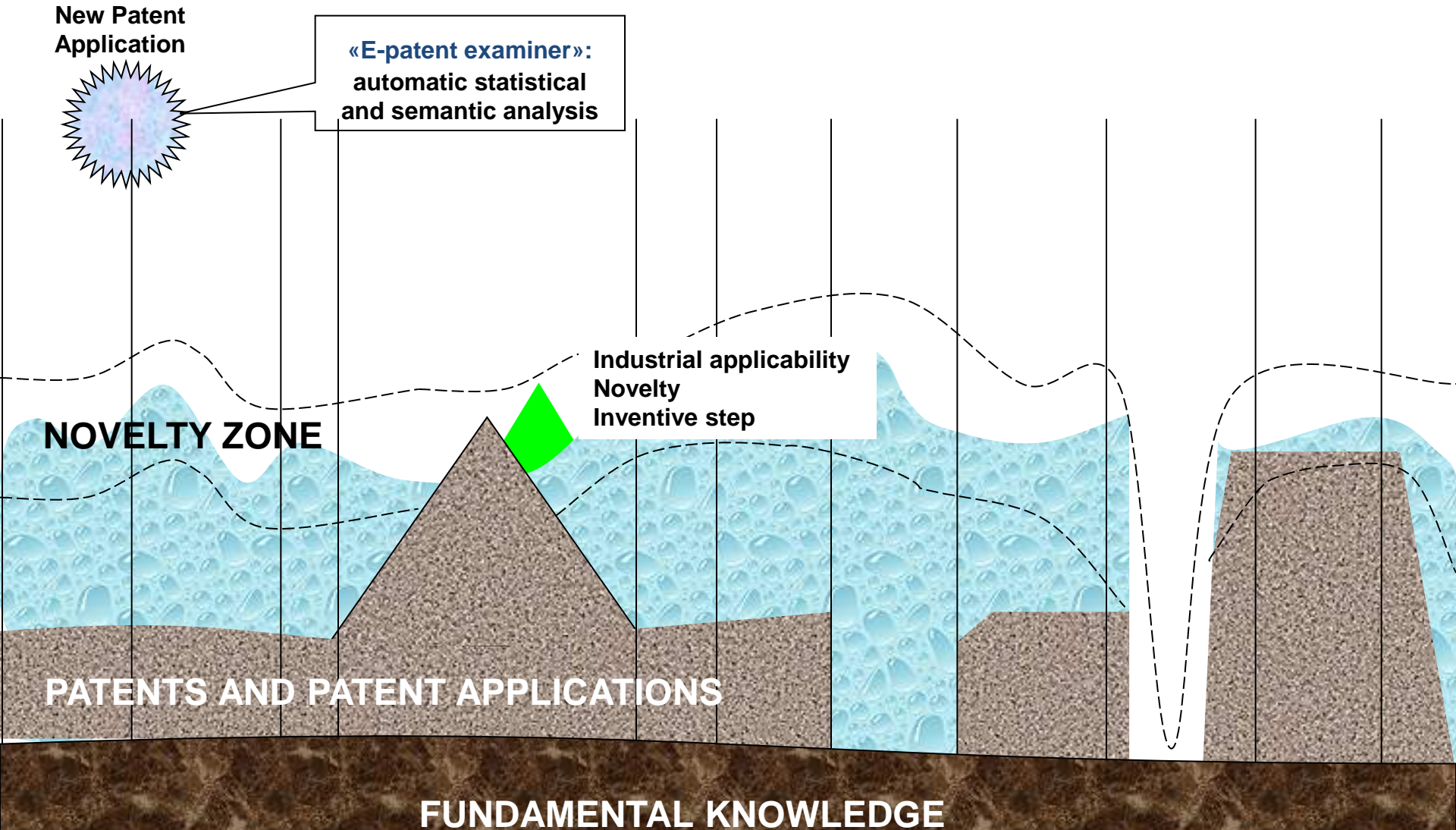
Should accept: true

Abstract ►

Description ►

1. A method of implanting ions into a workpiece by moving the workpiece through a substantially fixed ion beam, comprising: moving the workpiece along a first scan path such that the workpiece is scanned through the ion beam; and moving the workpiece along a second scan path as the workpiece oscillates along the first scan path, wherein dimensional data regarding dimensions of the workpiece and/or the ion beam and orientation data regarding an orientation of the workpiece relative to the ion beam are utilized to produce a scan pattern of the ion beam across the workpiece that approximates the dimensions of the workpiece. 2. The method of claim 1, wherein the orientation data is updated prior to respective oscillations of the workpiece along the first scan path and is utilized to determine respective ranges of motion for the oscillations of the workpiece along the first scan path. 3. The method of claim 2, wherein the respective ranges of motion of the workpiece along the first scan path during the respective interval of angular displacement comprising the steps of providing a first subassembly affixed to a vacuum chamber and having a first opening; providing a second subassembly to which the beam column is affixed, the second subassembly having an opening and being electro-mechanically drive-able through a path of angular displacement with respect to the first subassembly; and providing a vacuum seal between the first opening and the second opening. The method of claim 1, wherein a beam of the beam column passes through a point that remains substantially fixed with respect to the first subassembly throughout a range of spatial displacement. The method of claim 1, wherein the path of angular displacement is a circular arc. The method of claim 1, wherein during angular displacement a gas seal is maintainable between a first region that includes a beam of the beam column and a second region that excludes the beam. The method of claim 1, further comprising the steps of providing a motor mounted to one of the two subassemblies with a first gear mounted to a rotatable shaft of the motor; and providing a second gear enmeshed with the first gear and mounted

Patent Information Space three-layer structure



Results

- Pilot version of «E-patent examiner» is deployed in Amazon “cloud” servers
- The time of patents processing was reduced to 1000 docs in 58 sec by parallel algorithms
- Bilingual algorithm was trained on more than 1000000 patents
- Patents base of knowledge was created

Future

- Scaling algorithms for full patent base of knowledge
- Application embedded objects processing
- Multilingual processing
- Implementation of new developed statistical method “Text explosion” that performs much better than LDA and is easily scalable

Conclusions

- «E-PATENT EXAMINER» solves problems of an examiner subjectivity and time spent for examination
- It's necessary to develop a fundamentally new approach to the analysis of patent space
- The proposed approach implements a new global paradigm of United Patent Information Space
- The united efforts of the international community will make the transition from local databases to a universal environment for creating new technical solutions

WORLD WIDE UPS «E-PATENT EXAMINER»

