

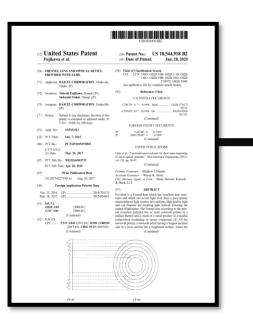
# Artificial Researcher

Automatic Query Formulations
From text segment to Boolean query syntax
https://demo.qf.artificialresearcher.com/



## Text segment to Query Formulation

### For example, take the abstract and claim (1)



#### Abstract

Provided is a Fresnel lens which has excellent heat resistance, and which can covert light even from a poor-quality semiconductor light sources into uniform, high-quality light and can disperse the resulting light without lowering the central illuminance. The Fresnel lens according to the present invention includes two or more sawtooth prisms in a surface thereof and is made of a cured product of a curable composition containing an epoxy compound (A). Of the sawtooth prisms, a sawtooth prism having a longest inclined side in a cross section has a roughened surface, where the cross section is given by cutting the Fresnel lens in a plane which passes through the center of the Fresnel lens, and which is perpendicular to a reference plane of the Fresnel lens.

#### Claim

#### The invention claimed is:

1. A Fresnel lens comprising two or more sawtooth prisms in a surface thereof,wherein the Fresnel lens is made of a cured product of a curable composition containing (A) an epoxy compound, wherein, of the sawtooth prisms, only a sawtooth prism having a longest inclined side in a cross section has a roughened surface having an arithmetic mean surface roughness (Ra) of 1 to 30  $\mu m$ , where the cross section is given by cutting the Fresnel lens in a plane which passes through a center of the Fresnel lens, and which is perpendicular to a reference plane of the Fresnel lens.

### Example of automatic query generation

("inclined side"~5 OR "surface roughness"~5 OR "covert light"~5 OR "central illuminance"~5 OR resistance OR "fresnel lens"~5 OR "sawtooth prism"~5 OR "cross section"~5 OR "epoxy compound"~5 OR "roughened surface"~5) AND ("cross section"~5 OR surface OR "cured product"~5 OR "epoxy compound"~5 OR "longest inclined side"~6 OR "roughened surface"~5 OR plane OR "reference plane"~5 OR "excellent

prism Automatic query expansion terms

sourc

"cent

covert light => "light failure", "weak light", "external light" , "ambient light"

sawtooth prisms =>"prism film", "optical component", film ,"linear prism", "colorless prisms" , prisms , "optical part"

epoxy compound =>"sulfonyl hydrazide compound", "acrylic acid"
,"carboxylic acid", "acrylic compound", "carboxylic acid compound",
"benzophenone compound", thioxanthone))

**fresnel lens** =>shape, lens, "second rodlike lens", cone, "optical zone", "auxiliary lens"

### Demo





#### **Query Formulator**

This is a a proof of concept.
Using our APIs you can develop your own version.

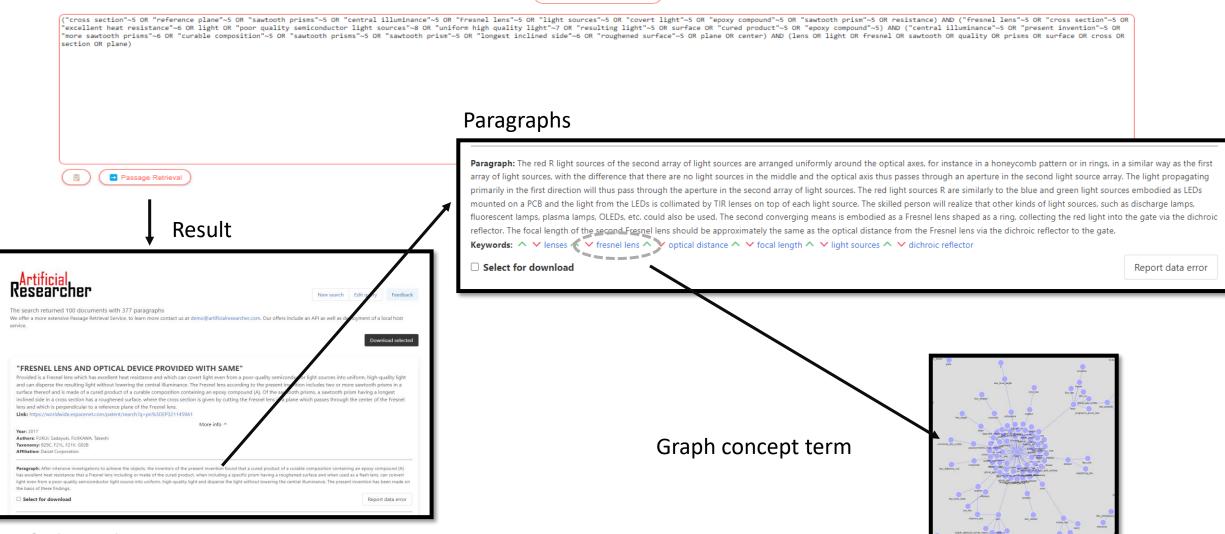
Provided is a Fresnel lens which has excellent heat resistance and which can covert light even from a poor-quality semiconductor light sources into uniform, high quality light and can disperse the resulting light without lowering the central illuminance.

The Fresnel lens according to the present invention includes two or more sawtooth prisms in a surface thereof and is made of a cured product of a curable composition containing an epoxy compound (A). Of the sawtooth prisms, a sawtooth prism having a longest inclined side in a cross section has a roughened surface, where the cross section is given by cutting the Fresnel lens in a plane which passes through the crenter of the Fresnel lens and which is perpendicular to a reference plane of the Fresnel lens. Query DEMO Passage Retrieval 🗸 DEMO Passage Retrieval ("cross section"~5 OR "reference plane"~5 OR "sawtooth prisms"~5 OR "central illuminance"~5 OR "Fresnel lens"~5 OR G ight"~5 OR "epoxy compound"~5 OR "sawtooth prism"~5 OR resistance) AND ("fresnel lens"~5 OR "cross section"~5 OR "excellent heat resistance"-6 OR light OR "poor quality semiconductor light sources"-8 OR "uniform high quality 1 R surface OR "cured product"~5 OR "epoxy compound"~5) AND ("central illuminance"~5 OR "present invention"~5 OR "more sawtooth prisms"-6 OR "curable composition"-5 OR "sawtooth prisms"-5 OR "sawtooth prisms"-5 OR "longest incli Espacenet ce"~5 OR plane OR center) AND (lens OR light OR fresnel OR sawtooth OR quality OR prisms OR surface OR cross OR section OR plane) USPTO LENS.ORG Google Patent **Build your Query** Passage Retrieval



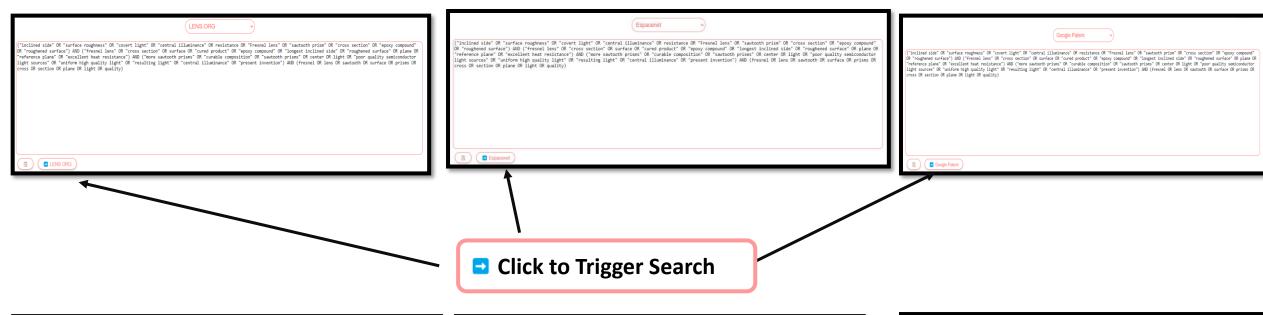
## AR-Passage Retrieval<sup>TM</sup>

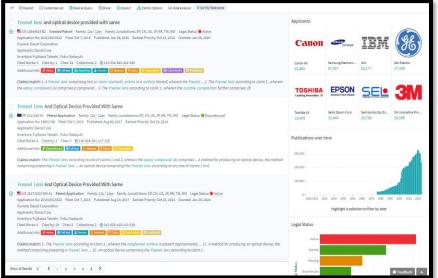
DEMO Passage Retrieval 💌

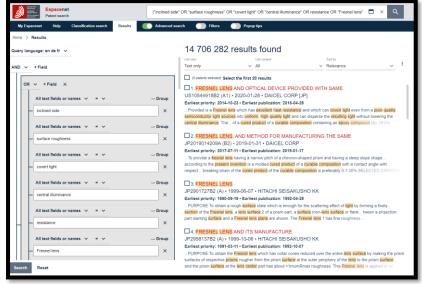


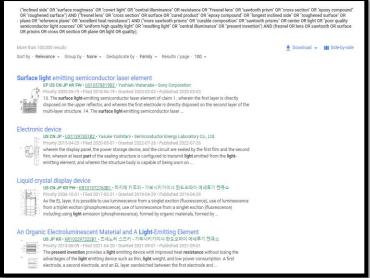
### LENS.ORG & Espacenet & Google Patent





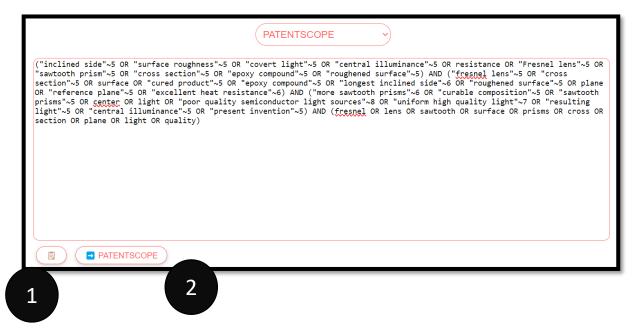








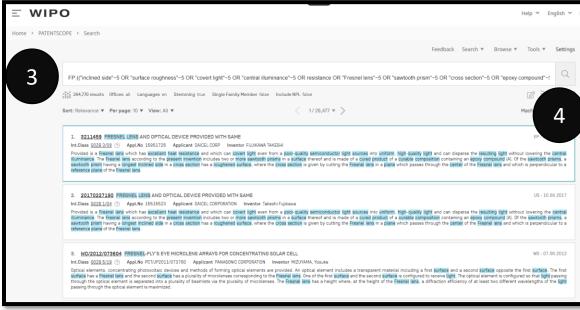
### PATENTSCOPE



- 1. Copy
- 2. Click
- 3. Paste
- 4. Search

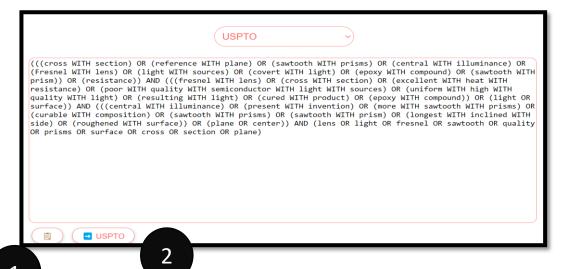
### Proximity "w1 w2 w3"~(length+3 words)

("inclined side"~5 OR "covert light"~5 OR "central illuminance"~5 OR resistance OR "Fresnel lens"~5 OR "sawtooth prism"~5 OR "cross section"~5 OR "epoxy compound"~5 OR "roughened surface"~5 OR "curable composition"~5) AND ("fresnel lens"~5 OR "cross section"~5 OR "excellent heat resistance"~6 OR light OR "poor quality semiconductor light sources"~8 OR "uniform high quality light"~7 OR "resulting light"~5 OR surface OR "cured product"~5 OR "epoxy compound"~5) AND ("central illuminance"~5 OR "present invention"~5 OR "more sawtooth prisms"~6 OR "curable composition"~5 OR "sawtooth prisms"~5 OR "sawtooth prisms"~5 OR "longest inclined side"~6 OR "roughened surface"~5 OR plane OR center) AND (lens OR light OR fresnel OR sawtooth OR quality OR prisms OR surface OR cross OR section OR plane)





## USPTO –patent Public Search



- 1. Copy
- 2. Click
- 3. Paste
- 4. Search

### Proximity WITH within the same sentence

(((cross WITH section) OR (reference WITH plane) OR (sawtooth WITH prisms) OR (central WITH illuminance) OR (Fresnel WITH lens) OR (light WITH sources) OR (covert WITH light) OR (epoxy WITH compound) OR (sawtooth WITH prism)) OR (resistance)) AND (((fresnel WITH lens) OR (cross WITH section) OR (excellent WITH heat WITH resistance) OR (poor WITH quality WITH semiconductor WITH light WITH sources) OR (uniform WITH high WITH quality WITH light) OR (resulting WITH light) OR (cured WITH product) OR (epoxy WITH compound)) OR (light OR surface)) AND (((central WITH illuminance) OR (present WITH invention) OR (more WITH sawtooth WITH prisms) OR (curable WITH composition) OR (sawtooth WITH prisms) OR (sawtooth WITH prisms) OR (longest WITH inclined WITH side) OR (roughened WITH surface)) OR (plane OR center)) AND (lens OR light OR fresnel OR sawtooth OR quality OR prisms OR surface OR cross OR section OR plane)



3



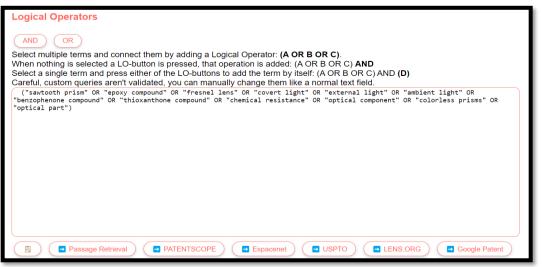
## Build your Query



### How to build a query

- Select multiple terms by connect them by adding a Logical Operator (LO) e.g., AND | OR Example: (A OR B OR C).
- 2. When building a complex query, press the LO-button Example: (A OR B OR C) **AND** (...)
- 3. If selecting a single term and press either of the LO-buttons to add the term by itself:

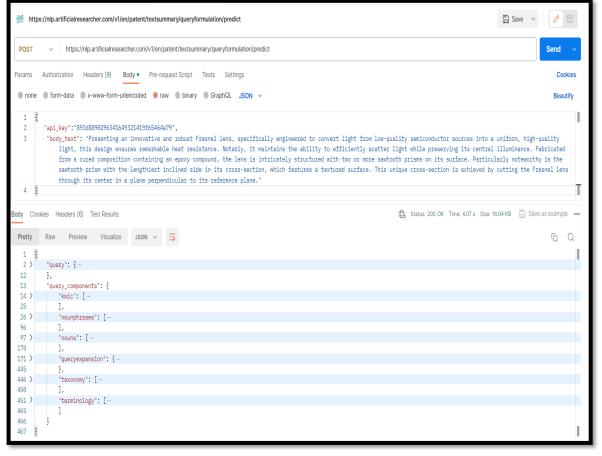
  Example: (A OR B OR C) AND (**D**)





### **REST API**

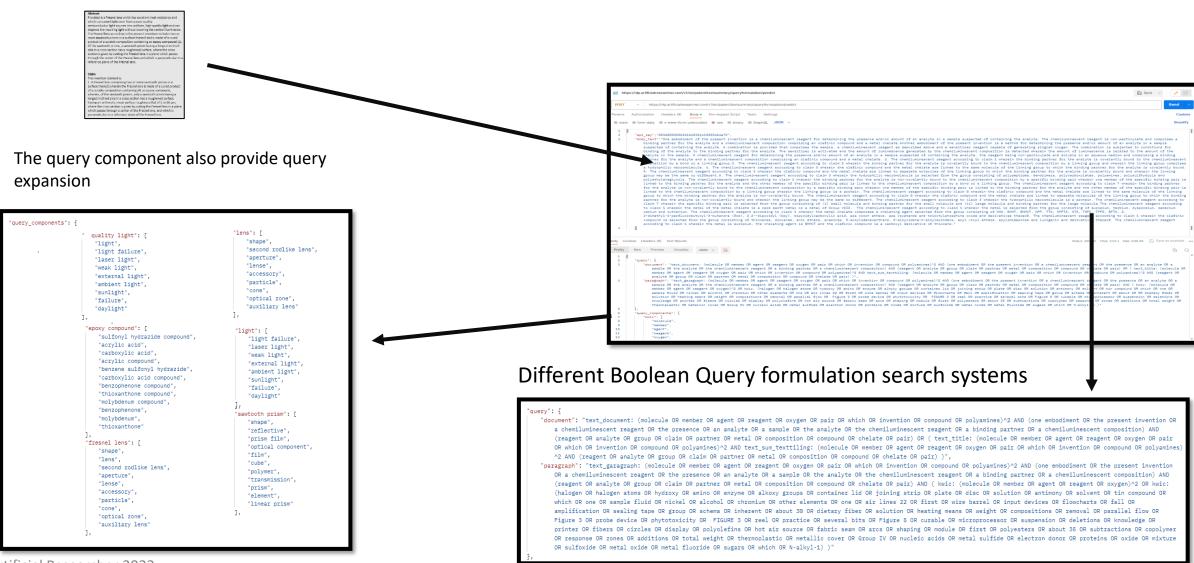
curl --location
'https://nlp.artificialresearcher.com/v1/en/patent/textsummary/queryformulation/predict' \
--header 'Content-Type: application/json' \
--data '{
 "api\_key":"893d8890296341649321419f65464a79",
 "body\_text": "Presenting an innovative and robust Fresnel lens, specifically engineered to convert light from low-quality semiconductor sources into a uniform, high-quality light, this design ensures remarkable heat resistance. Notably, it maintains the ability to efficiently scatter light while preserving its central illuminance. Fabricated from a cured composition containing an epoxy compound, the lens is intricately structured with two or more sawtooth prisms on its surface. Particularly noteworthy is the sawtooth prism with the lengthiest inclined side in its cross-section, which features a textured surface. This unique cross-section is achieved by cutting the Fresnel lens through its center in a plane perpendicular to its reference plane."
}'



## Query formulation pipeline



Query formulation: all intermediate step are returned Boolean query, terminology, kwic, query expansion terms, noun phrases and nouns





## Artificial Researcher - Services & Products

Test access: API key b10225791d2a478c9ff3d8cd106ad65a

### Artificial Researcher Passage Retrieval Service

- Access: rest API, Desktop App Script (Python)
  - https://swagger.artificialresearcher.com/ (developer)
  - <a href="https://passageretrieval.artificialresearcher.com/">https://passageretrieval.artificialresearcher.com/</a> (demo)
- SaaS or on-premises software (Docker)

### Artificial Researcher Ontology Service

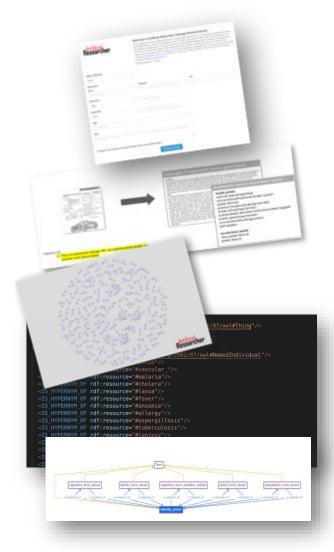
- Access: rest API, Desktop App Script (Python)
  - https://swagger.artificialresearcher.com/?urls.primaryName=onto-api (developer)
  - Data format OWL or JSON
- SaaS or on-premises software (Docker)
  - Ontology generator only SaaS

### Artificial Researcher NI P-toolkit Services

- Access: rest API
  - https://swagger.artificialresearcher.com/?urls.primaryName=unified-nlp-server (developer)
- SaaS or on-premises software (Docker)

### • Artificial Researcher Graph Search Service

• UX: https://alpha.graph-demo.artificialresearcher.com/ (demo)





## Verified use cases for our technology



## Misinformation & disinformation detection

Hybris threat resilience through interdisciplinary cooperation between security authorities









Artificial Researcher in Open Access

### **Intellectual property Industry**



Bundesministerium Verkehr, Innovation und Technologie

### Cloud solution

- Scientific publication
- Patent data
- Collaboration with Fitz Karlsruhe

Artificial Researcher in Science

### Next generation scientific search tool





### Onsite solution

- Open access
- Internal resources

FemPower 2019-2022



### **iFAIR**

Identifying datasets in scientific publications.

### **AR-ONTO-COVID**

A Knowledge-Based Resource for Covid-19