



APPROACH

# ADVANCED PHOTONIC PROCESSES FOR NOVEL SOLAR ENERGY HARVESTING TECHNOLOGIES

## Innovation management: Protecting intellectual property

Linda Lososová



# FROM IDEA TO INNOVATION

- Sometimes long, sometimes short journey
- The entire **DEVELOPMENT PERIOD** should be **RECORDED** (time, people, resources used)
- In practice, it's almost **NEVER RECORDED...**
- It helps mainly in determination of invention's cost value



# CREATION OF INNOVATION

- Researchers celebrate...
- Technology Transfer Office is on standby - in this moment, the role of TTO begins
- Important **INTERNAL STEPS** must be taken at the university



# UNIVERSITY INTERNAL RULES

University supposed to have INTERNAL RULES for:

- 1) INNOVATION / INVENTION DISCLOSURE
  - 2) LEGAL PROTECTION
  - 3) FINANCING
  - 4) COMMERCIALIZATION
  - 5) COMPENSATION for originators / inventors  
in the form of binding INTERNAL REGULATION
- Researchers should be familiar with it
  - In practice, RESEARCHERS ALMOST NEVER KNOW...



Univerzita Palackého  
v Olomouci

SMĚRNICE REKTORA UP (SR)

B3-16/1-SR

## Realizace práv průmyslového vlastnictví na Univerzitě Palackého v Olomouci

Obsah:	Tato směrnice stanovuje jednotný postup při zajišťování ochrany práv průmyslového vlastnictví vzniklých na Univerzitě Palackého v Olomouci a poskytování odměn za vytvoření zaměstnaneckých předmětů průmyslového vlastnictví původcům.
Garant:	Právní oddělení UP
Platnost:	dnem 29.1.2016
Účinnost:	dnem 1.2.2016
Rozdělovník:	rektor, prorektorky a prorektoři, kvestor, kancléř, děkanky a děkani fakult, tajemnice a tajemníci fakult, vedoucí zaměstnanci CVT UP, KUP, VUP, PS UP, VTP UP, ASC UP, SKM UP, CPSSP, KI UP, vedoucí zaměstnanci EO RUP, ORV UP, PTO UP, OVZ UP, OPDV UP, Archivu UP, OPOP, OK, Právní oddělení UP, Oddělení interního auditu a kontroly UP, Oddělení strategického rozvoje UP

# INNOVATION / INVENTION DISCLOSURE

- It takes serious legal effect
- Must include:
  - TITLE and TYPE of IP
  - DESCRIPTION
  - POSSIBLE USE
  - CO-INVENTORS & SHARES
  - DEVELOPMENT PERIOD
  - CO-OWNERS & SHARES
- Everyone supposed to sign and date, including University's acceptance
- Otherwise, the invention becomes the personal property of inventors



## Invention Disclosure Form

Please read the notes, complete this form and send to:  
 Disclosures, Cambridge Enterprise Limited, University of Cambridge, Hauser Forum, 3 Charles  
 Babbage Road Cambridge, CB3 0GT.  
 Telephone switchboard: +44 (0)1223 (7)60339, Fax: +44 (0)1223 (7)63753.  
 Email: [disclosures@enterprise.cam.ac.uk](mailto:disclosures@enterprise.cam.ac.uk) web: [www.enterprise.cam.ac.uk](http://www.enterprise.cam.ac.uk)

OPTING IN / OPTING OUT	
Please indicate whether you wish Cambridge Enterprise to support commercialisation of your invention. You may wish to familiarise yourself with the University's IP policy: <a href="http://www.enterprise.cam.ac.uk/ipandlicensing.php?subsub=21">http://www.enterprise.cam.ac.uk/ipandlicensing.php?subsub=21</a>	

1. INVENTORS				
Please list all inventors. A co-inventor is an individual without whose intellectual and creative input the invention could not have been made in its present form. They must have conceived or contributed an essential element of the invention either independently or jointly with others, during the evolution of the invention or its reduction to practice.				
a. Please list all inventors and nominate one person as the principal contact.				
Inventor(s)	Position	Department	Phone/Fax	Email

2. INVENTION	
Notes:	
a. A brief, descriptive title to aid in identifying the invention; say, six words maximum, please!	
b. In describing the invention, please explain: <ul style="list-style-type: none"> <li>- The problem it solves</li> <li>- How it works and the commercial applications</li> <li>- Advantages and improvements over existing methods, devices or materials</li> </ul>	
c. The date is when the inventor(s) devised the essential concepts of the invention - but without necessarily having proved that it would work or having built a prototype.	
d. In most countries a patent application must be filed before an oral or printed publication is made available to the public. Publication means the first time any person, without restriction of confidentiality, would have been able legally to gain access to your description. 'Oral disclosure' means lectures, seminars, conference presentations, any talk to external research groups, or in general conversation with people outside the University of Cambridge - except where these activities were covered by a documented obligation of confidentiality.	
a. Title:	
b. Please attach a brief description of the invention. What is the current state of the invention? Please choose from the following options. <b>Idea</b> , <b>Proven concept</b> or <b>Working prototype</b> .	
c. What date did you make the invention?	How is this documented?

# DECIDING ON THE APPROPRIATE TYPE OF IP PROTECTION

- TYPE of innovation / invention crucial for further protection & commercialization

- KNOW-HOW

- PATENTABLE INVENTIONS

- DESIGNS

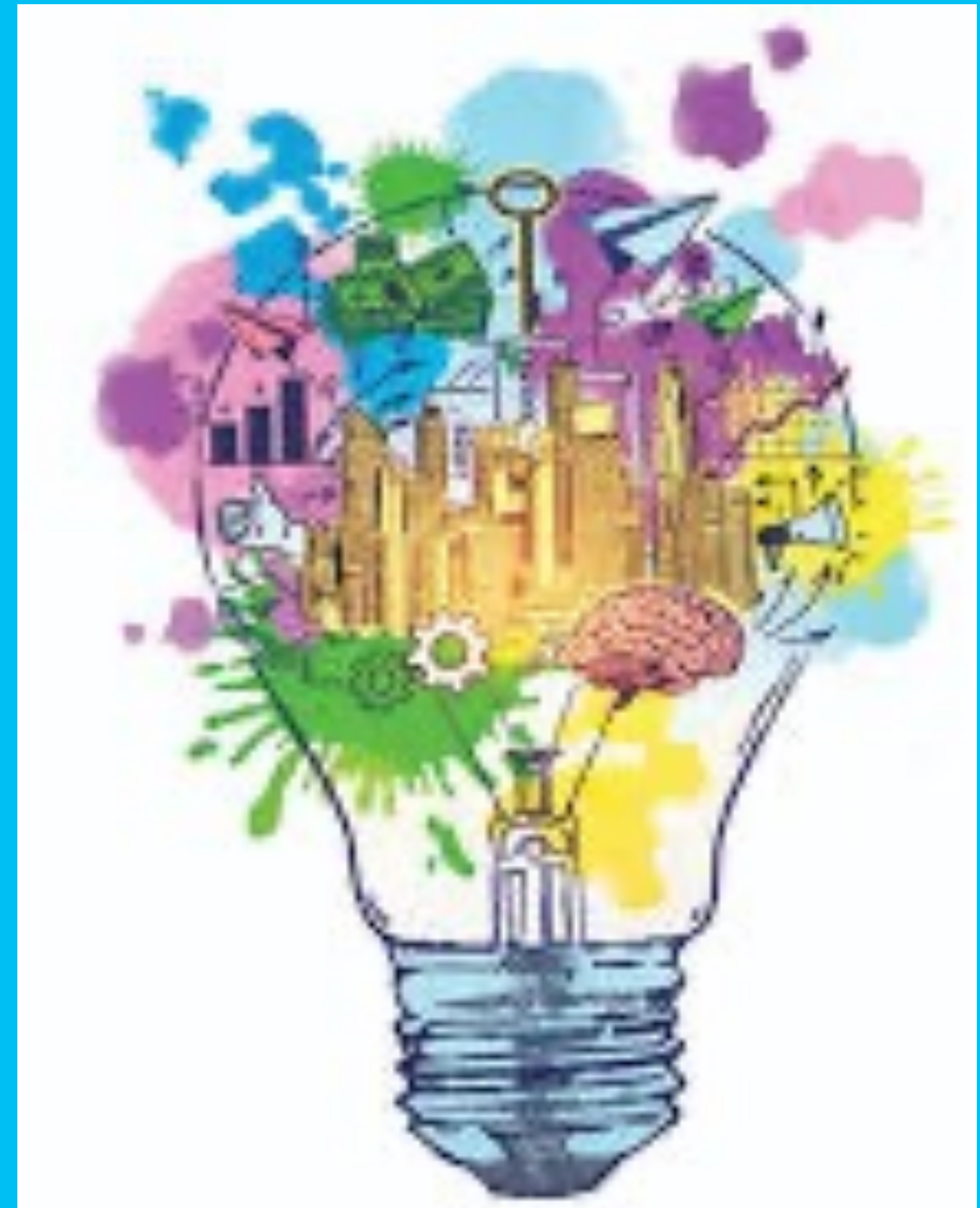
- UTILITY MODELS

- University takes the decision whether to

- 1) publish

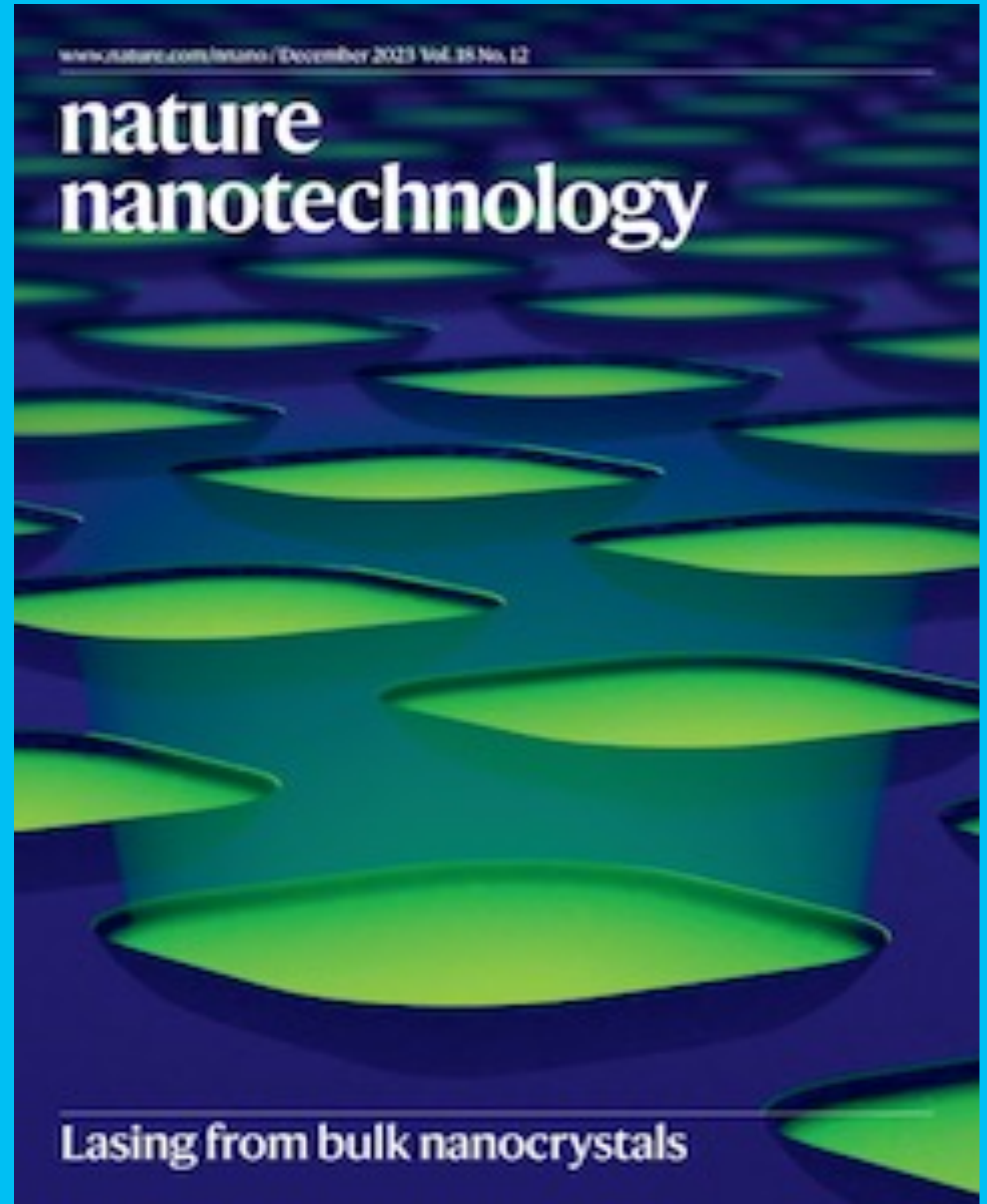
- 2) keep secret

- 3) protect via patent



# SCIENTIFIC PUBLICATIONS

- CRUCIAL for scientists & researchers (they must generate publications)
- But what do scientists & researchers need to know?
- They need to know that
  - 1) FIRST, the patent protection must be secured,
  - 2) THEN, the innovation can be published as a scientific article







# STARTING LEGAL PROTECTION

- University is the IP OWNER
- Inventors ARE NOT the IP owners
- **Why?**
- University as the IP owner SUBMITS the APPLICATION for patent protection
- There are more types of formal legal IP protection: PATENTS/DESIGNS/UTILITY MODELS/TRADEMARKS
- PATENT ATTORNEY needed (can be internal or hired)
- University bears COSTS
- University is the DECISION MAKER
- Also, on proceedings steps



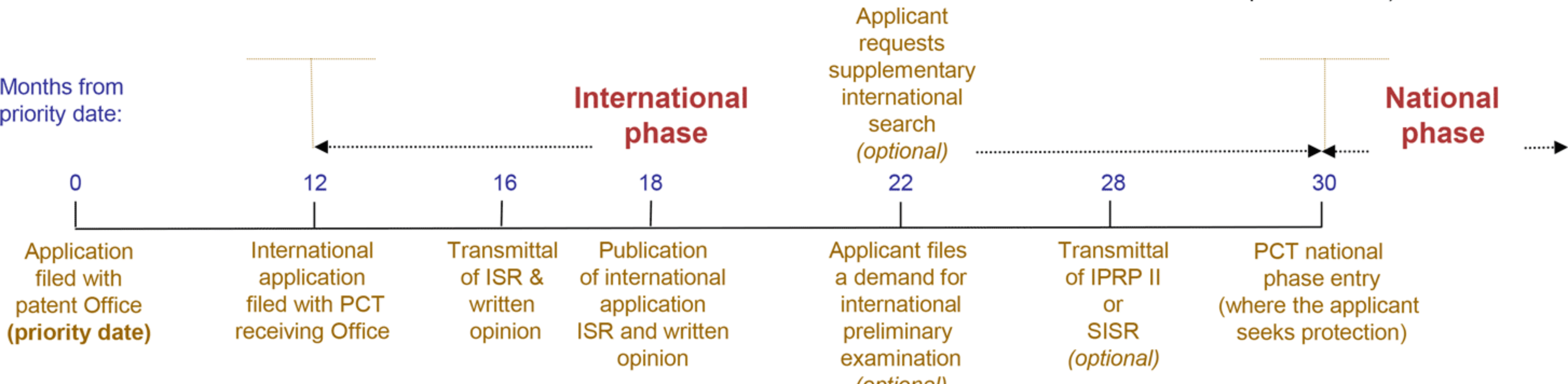
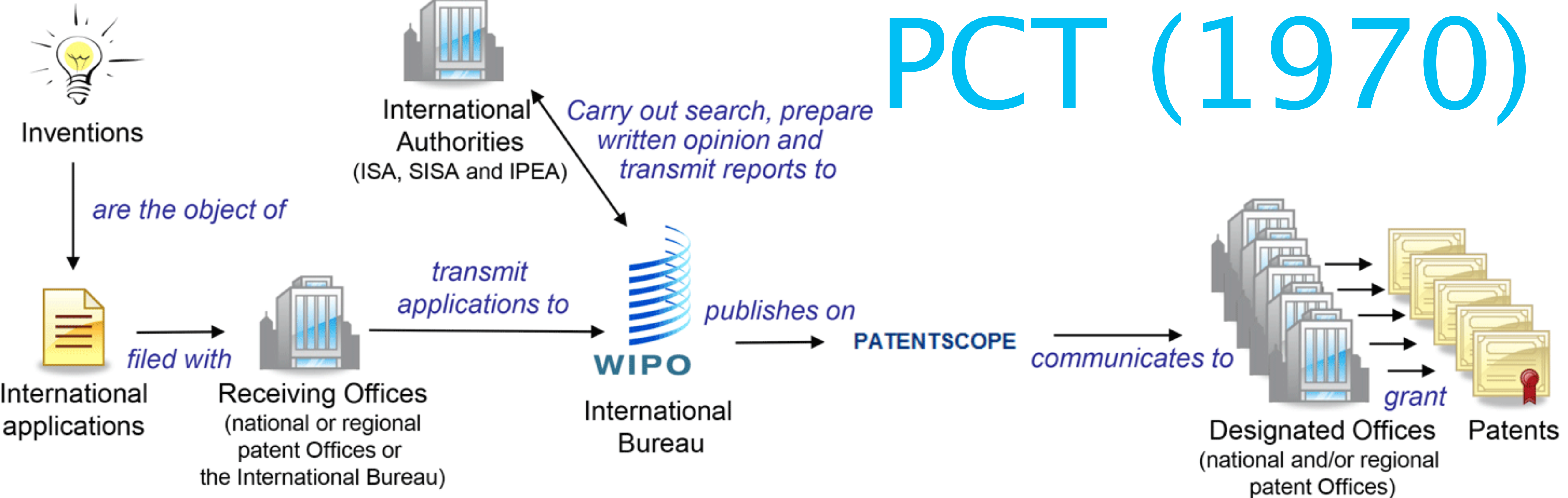
# PATENTING:

## 3 MODELS “HOW TO START”

- NATIONAL PATENT
- EUROPEAN PATENT
- PCT
  
- Depends on commercial potential of invention
- Patent strategy crucial for commercialization



# PCT (1970)



# SEARCH REPORT & OPINION ON PATENTABILITY

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/CZ2021/050016

### Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

#### 1. Statement

Novelty (N)	Yes: Claims	<u>1-14</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-6, 8-10</u>
	No: Claims	<u>7, 11-14</u>
Industrial applicability (IA)	Yes: Claims	<u>1-14</u>
	No: Claims	

#### 2. Citations and explanations

see separate sheet

- 16 months after filing national application or PCT
- International Searching Authority (EPO in EU, Visegrad Patent Office for Visegrad countries)
- Crucial document for further patent strategy and finding out how we are doing


# PUBLICATION

- 18 months after filing national application or PCT
- International Bureau of WIPO (World Intellectual Property Organization founded under Patent Cooperation Treaty, 1970)
- Invention becomes AVAILABLE for public (everyone)
- Protected from the filing date


(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau

(43) International Publication Date  
11 November 2021 (11.11.2021)

 WIPO | PCT

(10) International Publication Number  
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C01B 32/194 (2017.01) H01M 4/02 (2006.01)

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

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(54) Title: NITROGEN AND FLUORINE DOPED GRAPHENE AND USE THEREOF

(57) Abstract: The present invention provides a method for preparation of nitrogen-doped graphene which contains the following steps: a) providing a dispersion of fluorinated graphite; b) subjecting the dispersion of fluorinated graphite to sonication and/or mechanical treatment and/or thermal treatment; c) contacting the product from step b) with an azide reagent at a temperature within the range of 40 to 200 °C; d) separating the solid product formed in step c) from the mixture; e) dialyzing the product obtained in step d) against water. The method yields a nitrogen-doped graphene containing at least 8.9 at. % of nitrogen and up to 16.6 at. % of fluorine, wherein the at. % are relative to the total atoms present in the sample and determined by X-ray photoelectron spectroscopy (XPS) using an Al-K $\alpha$  source; and having a density above 1.2 g/cm<sup>3</sup> when pressed at 80 kN for 1 min. The thus obtained nitrogen-doped graphene is particularly useful as a supercapacitor material.

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# EXCEPTIONS FROM PUBLICATION

- STATE INTEREST
- Typically, EXPLOSIVES
- Disclosure of the invention STAYS SECRET for public
- Czech explosive SEMTEX would not be found in the patent register



# PATENT GRANTING

- Always in national phases
- Never in PCT
- 20 years from filing date
- Receipt of Patent Document
- Electronically in patent register

 Innovation, Sciences et Développement économique Canada  
Office de la propriété intellectuelle du Canada

Innovation, Science and Economic Development Canada  
Canadian Intellectual Property Office

## Brevet canadien / Canadian Patent

  
**3,076,855**  
Numéro de brevet  
Patent number

Le commissaire aux brevets a accordé un brevet pour l'invention décrite dans le mémoire descriptif portant le numéro de brevet susmentionné. Le mémoire descriptif est accessible dans la Base de données sur les brevets canadiens sur le site Web de l'Office de

Titre de l'invention / Title of invention  
**PARTICULES DE COMPLEXE DITHIOCARBAMATE-MÉTAL BIODISPONIBLES, LEUR PROCÉDE DE PRÉPARATION ET LEUR UTILISATION**

**BIOAVAILABLE DITHIOCARBAMATE-METAL COMPLEX PARTICLES, METHOD OF PREPARATION AND USE THEREOF**

Breveté(s) / Patentee(s)  
**PALACKY UNIVERSITY OLOMOUC**

Inventeur(s) / Inventor(s)  
**SKROTT, ZDENEK; MISTRİK, MARTIN; HAJDUCH, MARIAN; DZUBAK, PETR; BARTEK, JIRI; ZBORIL, RADEK**

Date de l'octroi et de la délivrance du brevet / Patent grant and issue date  
**2022-04-26**

# VALIDATION & MAINTENANCE

- No validation = no effectiveness
- EP needs to be validated in each country to be effective therein
- News: Unitary Patent (unified patent of EU) - cheaper
- Maintenance fees annually
- US patent = 4-year period

## Member states of the European Patent Organisation

The following states (sorted alphabetically) are currently members of the European Patent Organisation.



› See the list of member states sorted according to the date of accession

Code	Member state	Since
AL	Albania	1 May 2010
AT	Austria	1 May 1979
BE	Belgium	7 October 1977
BG	Bulgaria	1 July 2002
CH	Switzerland	7 October 1977
CY	Cyprus	1 April 1998
CZ	Czech Republic	1 July 2002





APPROACH

THANK YOU

