

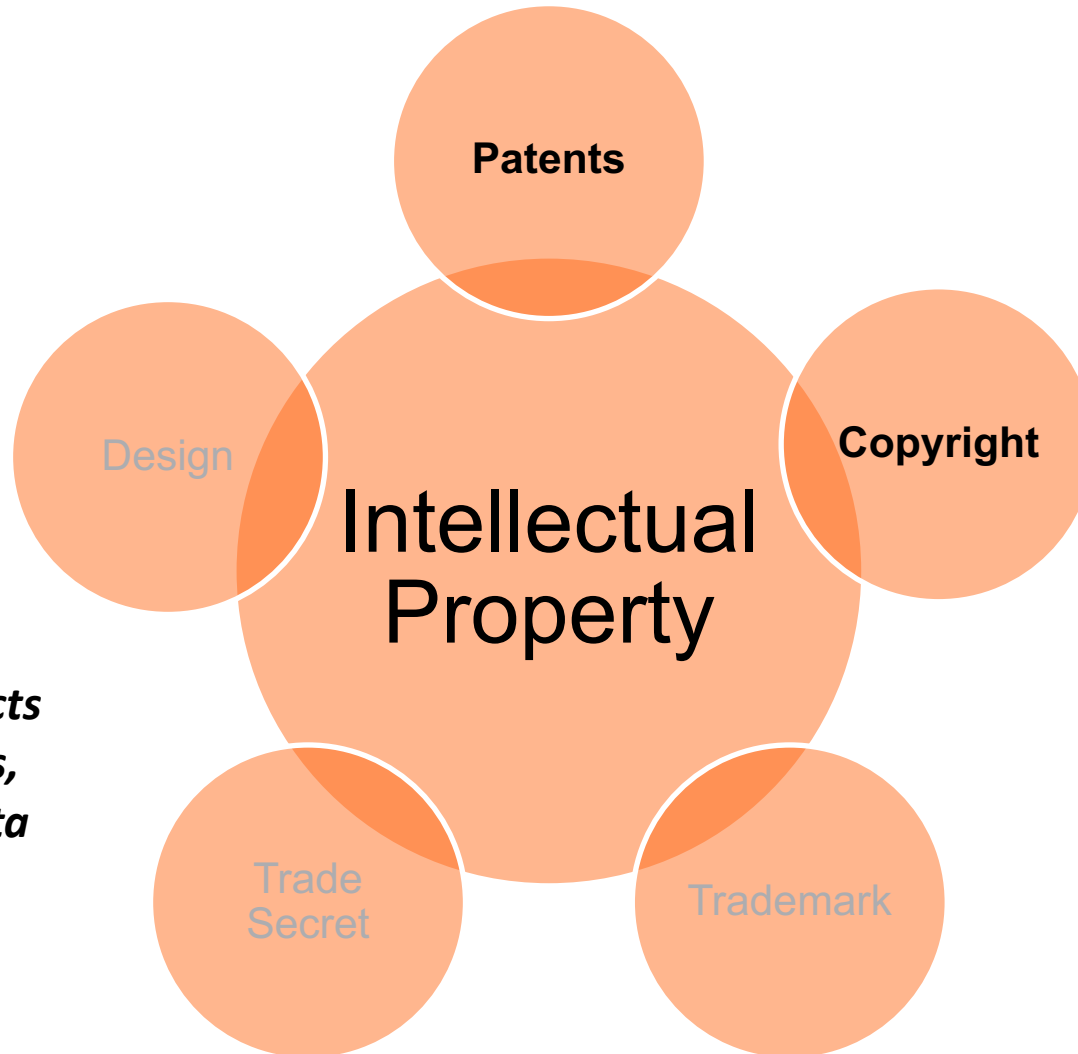
Resnick Sustainability Institute Intellectual Property Webinar

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What is Intellectual Property?



*Also – data
(human subjects
data, CAD files,
AI training data
sets...), can
include some
materials*

Why Protect Intellectual Property?

- **Metrics** - Sponsors often use patents and disclosures as a metric for the impact of their research funds
- **Required** - Recipients of federal funding are required to disclose federally funded inventions to the sponsor
- **Commercialize the technology** - Startups and large companies want something legally protectable on which to build a business and take technology into the marketplace

When to Disclose an Invention?

- **Before you publish**
 - your own publications can destroy novelty! (this is the most common time we see invention disclosures)
- **Before a public presentation**
 - presentations at public events count as public disclosures (is it “available to the public?”)
- **Before discussing online**
 - chemRxiv and bioRxiv, twitter, etc... are all public disclosures
- **Before someone else files or publishes**
 - important for particularly competitive fields



What to Disclose?

- **Patentable Inventions**
 - Is it novel? Is it non-obvious?
 - Is it a process, machine, article of manufacture or composition of matter (not a mechanism or something naturally occurring)
- **Software, images**
 - Somewhat different process (more later in the slides)
- **Data or Materials**
 - If there is a licensing request (AI training sets, antibodies)

Not sure? Please ask either me, or anyone else in our office.

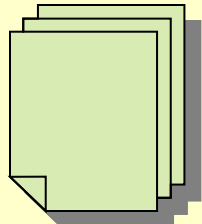
(If you are sending or transferring materials or data outside of Caltech, this is not covered here – email mta@Caltech.edu)

PATENT APPLICATIONS

Patent Process Overview

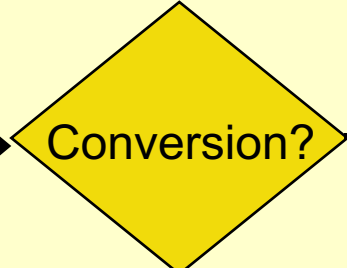


Scientists invent in research labs →



Invention disclosures to OTTCP

Provisional patent filing



US →

PCT ↓

National phase entry? →



Invention Disclosure Process

1. **Form:** Complete *disclosure form* from OTTCP web site and submit to OTTCP
2. **Review:** OTTCP reviews and responds with questions or requests for missing information
3. **File:** OTTCP files *provisional patent application*
4. **Decision:** 8-9 months later, OTTCP reaches out for more info to decide whether or not to convert to a nonprovisional

Information OTTCP Needs

- **Inventors**
 - List ALL inventors (Caltech and non-Caltech)
- **Funding**
 - Include the PTA! We cross-check all funding sources (could be multiple types from the same sponsor)
 - We need this to match which sponsor gets rights to which patents
 - List everything used in the conception of the invention and reduction to practice (RSI, gifts, RI2, Merkin, federal....)
- **Public Disclosures**
 - List all previous AND planned (so we know to file in time!)
- **Sign**
 - Only Caltech inventors sign

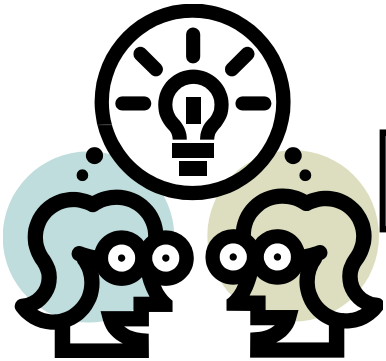
What to Include with the IDF

- **Description of the invention**
 - Manuscript
 - Supporting information
 - Slides
 - Written description
- **Summary of the Invention (1-2 pages)**
 - Required for manuscripts and presentation slides
 - Purpose (what problem the invention solves)
 - Improvements over existing solutions
 - Alternative examples

Inventorship

Inventor = One who conceived the *claimed* invention
(not one who merely reduces the invention to practice)

Legal determination made by outside lawyers if
necessary



INVENTORSHIP \neq AUTHORSHIP



Caltech Patent Policy

“All Institute employees shall sign a Patent and Copyright Agreement ***assigning their rights to patents or inventions*** that they may make in the line of their duties, or with any use of Institute facilities, ***to the Institute...***”

“Inventions made by an employee or student outside the line of Institute duty on the inventor’s own time without any use of Institute facilities are not the property of the Institute.”

<https://hr.caltech.edu/documents/2681/pm17.pdf>

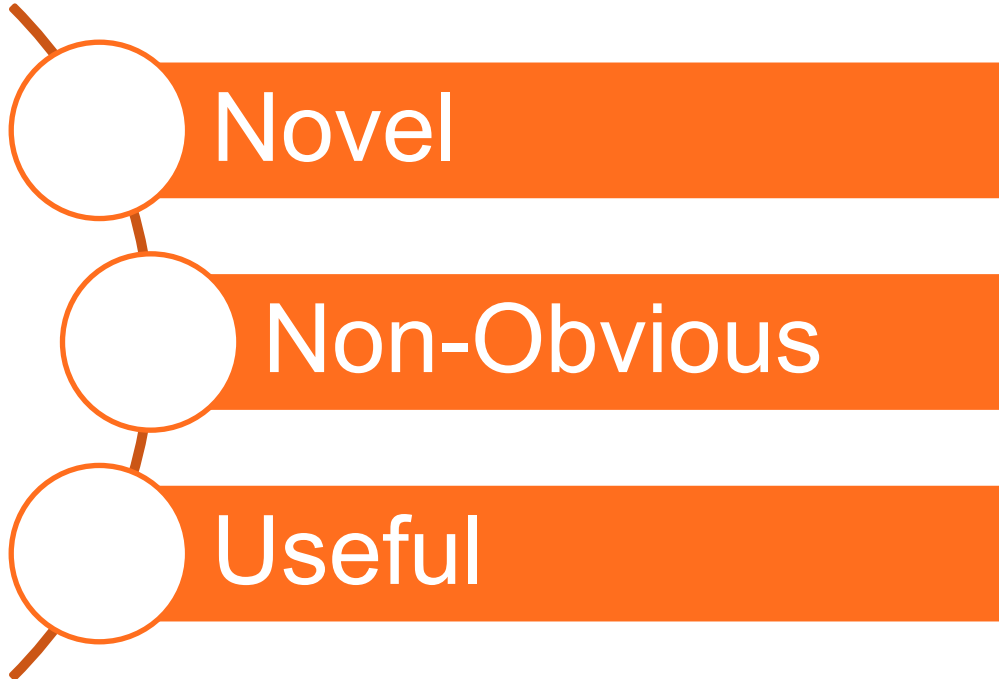
What is Patentable?

- A **process** (e.g., method of expressing a protein)
- A **machine** (e.g., scanning electron microscope)
- An **article of manufacture** (e.g., beaker)
- A **composition of matter** (e.g., chemicals, isolated genes (??))

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”

-35 USC § 101

An Invention Must Be...



**... to be
patentable**

35 U.S.C. § 101, 102, 103

Specification and Claim and Requirements (Utility Patents)

Parts of a Patent

- Title
- Abstract
- Figures (and their description)
- Background
- Summary of the invention
- Detailed description, examples (embodiments)
- Claims

35 U.S.C. § 112a and 112b

Enablement

A person of ordinary skill in the art must be able to make and use the invention

Claims

The boundaries of the claimed invention must be clear to be enforceable.

A Few Facts on Patents

- **Long Process:** From filing to grant it usually takes 3-4 years to get a patent
- **Cost:** provisionals are cheap, nonprovisionals are not (roughly \$25K per patent per country)
- **Patent Term:** 20 years from nonprovisional filing date, can be extended due to USPTO delays
 - Patent owner needs to pay to maintain a patent
- **Publication:** Provisional patent applications are not published but non-provisional patent applications are published

SOFTWARE (COPYRIGHTS)

Authorship in Software

An author (or contributor) is anyone who writes lines of code in software

As with inventors in patents, Caltech employees assign their rights in copyrightable works to Caltech



Open Source Software



- There are MANY open-source licenses, if you need help, please reach out to our office
- We don't control how or when software is released as open source
- Caltech requires
 1. A copyright notice
 2. A no-endorsement clause
 3. A disclaimer

(sample language in supplemental)

COMMERCIALIZING YOUR INVENTION

Entrepreneurial Resources



Stephanie Yanchinski
(stephanie.yanchinski@Caltech.edu)
Director of Entrepreneurial Programs at RSI and manages the Rocket Fund which provides seed money to cleantech startups.

- **Entrepreneur Funding Opportunities at OTTCP**
 - <https://innovation.caltech.edu/content/funding-opportunities>
- **OTTCP website**
 - <https://innovation.caltech.edu/content/entrepreneurship-resources> (Founder's Notes, At Caltech, Local, Web Resources)

Entrepreneurs in Residence



Julie Schoenfeld (jschoenf@Caltech.edu)
Physical Sciences Entrepreneur in Residence
Experienced executive and entrepreneur who led four venture backed startups 2 hardware and 2 software with 3 successful exits. BS Engineering Tufts & MBA Harvard.



Helen McBride (hmcbride@Caltech.edu)
Life Science Entrepreneur in Residence
Executive leader with over 13 years' experience developing novel therapeutics leading to over \$1B in revenue. BS Microbiology Texas A&M University, PhD University of Utah Oncological Sciences.

The Startup Process

- Entrepreneur decides that he/she wants to start a company on a specific technology, incorporates
- Reaches out to RSI Director of Entrepreneurial Programs or OTTCP EIR
- Formulates business plan, structures company
- Reaches out to OTTCP for a license or option
- Secures funding for the company (venture capital, private equity, government grants or other grants)
- Once there is funding, a license is executed

SUPPLEMENTAL

Sample Open Source Language

Copyright Notice: Copyright © <YEAR>, California Institute of Technology. All rights reserved.

- include the funding source, grant or award number, particularly for federal funding. This should be placed after Caltech in the notice above. Examples:
 - "based on research performed under NSF Grant <GRANT NO.>", or
 - "with support from the Office of Naval Research <AWARD No.>
 - "with support from The Resnick Sustainability Institute"**
- include researcher/author names. Examples:
 - "based on research by <NAME>", or
 - "based on research from the laboratory of <NAME>"

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A Patent Provides

The right to ***exclude*** others from making, using, offering for sale or selling the invention.

NOT

The right to make, use, offer for sale or sell the patented invention.

A patent does ***not*** guarantee:

Freedom to operate

Regulatory approvals

Lawfulness of patented invention

The licensing process

- Optionee demonstrates evidence of sufficient funding to commercialize invention (first 1-3 years)
- Negotiation of terms of the license agreement (often done at option states)
- Closing the deal (can involve coordination with investors)
- Managing the relationship with the licensee

Main terms subject to negotiations

- Field of use
- Exclusive/nonexclusive
- Diligence and milestones
- Patent costs
- Upfront fees
- Minimums
- Royalty rate
- Equity