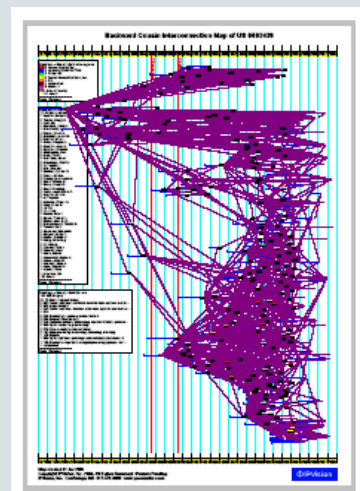


**Lemelson-MIT Prize 2011**

**Report on Patent Portfolio of John A. Rogers**  
**For: Lemelson-MIT Program**

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IPVision  
Patent Interconnection Map

## Lemelson-MIT Prize 2011

# Report on Patent Portfolio of John A. Rogers For: Lemelson-MIT Program

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## Disclaimers

DATA LIMITATIONS; ERRORS: IPVision has prepared this report from information which to the best of our knowledge is complete and accurate. NOTE: Electronic data from the United States Patent and Trademark Office is not available for patents issued prior to 1976. IPVision makes NO REPRESENTATIONS OR WARRANTIES as to this Report's completeness, accuracy or fitness for any purpose. If you find any errors in this Report please notify IPVision and we will rerun this report with corrected data if possible.

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## Access to the *See-the-Forest*<sup>TM</sup>

Where there are Live Links in this report simply click on the Link and it will take you to the specific document stored at the *See-the-Forest*<sup>TM</sup> Patent Analytics website.

**Important Note About Data.** The analyses presented in this Report were based on data as of June 1, 2011 – i.e., the patents listed for a given company represent patents owned of record as shown at the U.S. Patent and Trademark Office databases as of that date. Patents issued to, acquired by or disposed of by such a company after June 1, 2011 will not appear in the list of patents shown in this Report or on *See-the-Forest*<sup>TM</sup>. However, patents that issue after June 1, 2011 that cite a patent shown in an analysis in this Report will appear in any citation analysis run after June 1, 2011 on the information stored on *See-the-Forest*<sup>TM</sup>. In such as case there will be an inconsistency between the results presented in this Report (which is a snapshot in time) and the results shown on *See-the-Forest*<sup>TM</sup>.

# Lemelson-MIT Prize 2011

## Report on Patent Portfolio of John A. Rogers

### 1. THE LEMELSON-MIT PRIZE

"The \$500,000 Lemelson-MIT Prize recognizes individuals who translate their ideas into inventions and innovations that improve the world in which we live.

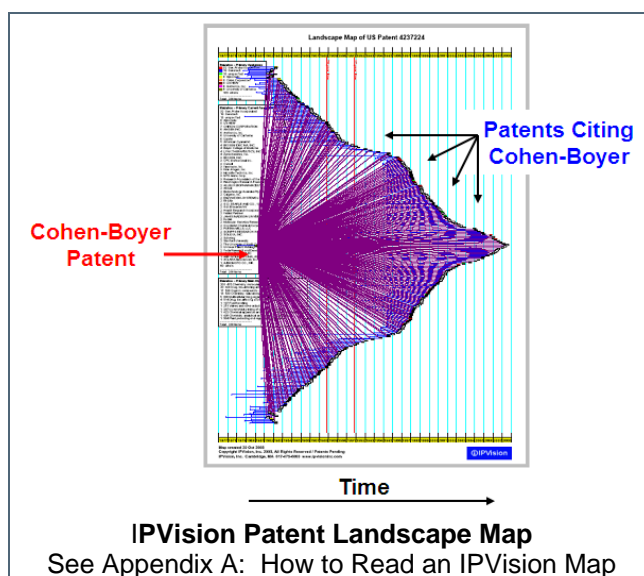
Dubbed the "Oscar for Inventors," the Lemelson-MIT Prize is awarded to outstanding mid-career inventors, who have developed a patented product or process of significant value to society, which has been adopted for practical use, or has a high probability of being adopted. By recognizing and funding younger, mid-career inventors, the prize is designed to spur inventive careers and provide role models for future generations of inventors." Source: [Lemelson-MIT Program Website](#)

### 2. OBJECTIVE MEASURES OF INNOVATION

One measure of the importance of an invention is the extent to which others in the field cite that invention in research papers. See for example, [Web of Science Citation Indices](#).

Patents are another form of evidence of the value of an innovation and the broadness of the commercial or societal adoption of that invention. In order to obtain a patent the inventor must show that his or her invention is "novel". Relevant prior art known to the inventor must be cited in the patent examination process. The failure of an applicant to cite relevant prior patent art can result in the patent becoming unenforceable. Accordingly, patent citations or the lack thereof have more specific economic consequences than citations of work in research papers

**High Patent Citation is Evidence of Value.** Many major innovations that have been patented have been highly cited by other patents. The IPVision Patent Landscape Map shown to the right is of the Cohen-Boyer gene splicing patent that launched the Biotech Industry. Stanley Cohen and Herbert Boyer were [Co-Recipients of the Lemelson-MIT Prize in 1996](#). Stanford University received over \$250m in revenue from the licensing of this patent. This patent U.S. 4,237,224 "Process for producing biologically functional molecular chimeras" had been cited over 270 times as of December 2009.



**Caveat:** Although high patent citation is strong evidence of the value of an innovation, this evidence must be considered relative to the age of the technology, -i.e., the time it takes for the innovation to be recognized by others. The speed of technological development in a field must also be considered.

### 3. JOHN A. ROGERS PATENT PORTFOLIO

[Dr. John Rogers](#) is the Lee J. Flory Founder Chair in Engineering Innovation, Professor of Materials Science and Engineering, Professor of Chemistry at the Beckman Institute in the Department of Materials Science and Engineering at the University of Illinois at Urbana-Champaign. He obtained his BA and BS degrees in chemistry and in physics from the University of Texas, Austin, in 1989. From MIT, he received SM degrees in physics and in chemistry in 1992 and the PhD degree in physical chemistry in 1995.

Dr. Rogers' research includes fundamental and applied aspects of nano and molecular scale fabrication as well

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as materials and patterning techniques for unusual format electronics and photonic systems.

As of June 1, 2011 Dr. Rogers had 73 issued U.S. patents and 23 published pending U.S. patent applications (the "Rogers Patents"). His top 5 most highly cited patents are:

| Top 5 Most Highly Cited Patents of John A. Rogers |   |  |                    |                    |
|---|---|--|--------------------|--------------------|
| Patent #  | Inventors   | Title  | Citations By (BCs) | Citations To (FCs) |
| 6150668   | Bao, Zhenan;<br>Dodabalapur, Ananth;<br>Katz, Howard Edan;<br>Raju, Venkataram<br>Reddy; Rogers, John<br>A. | Thin-film transistor monolithically<br>integrated with an organic light-<br>emitting diode | 4                  | 119                |
| 6337761   | Rogers, John A.;<br>Wiltzius, Pierre  | Electrophoretic display and<br>method of making the same                                   | 8                  | 78                 |
| 5546811   | Rogers, John A.;<br>Nelson, Keith A.  | Optical measurements of stress<br>in thin film materials                                   | 5                  | 59                 |
| 5982482   | Nelson, Keith A.;<br>Rogers, John A.  | Determining the presence of<br>defects in thin film structures                             | 5                  | 44                 |
| 5633711   | Nelson, Keith<br>A.;Duggal, Anil<br>R.;Rogers, John A.  | Measurement of material<br>properties with optically induced<br>phonons                    | 2                  | 38                 |

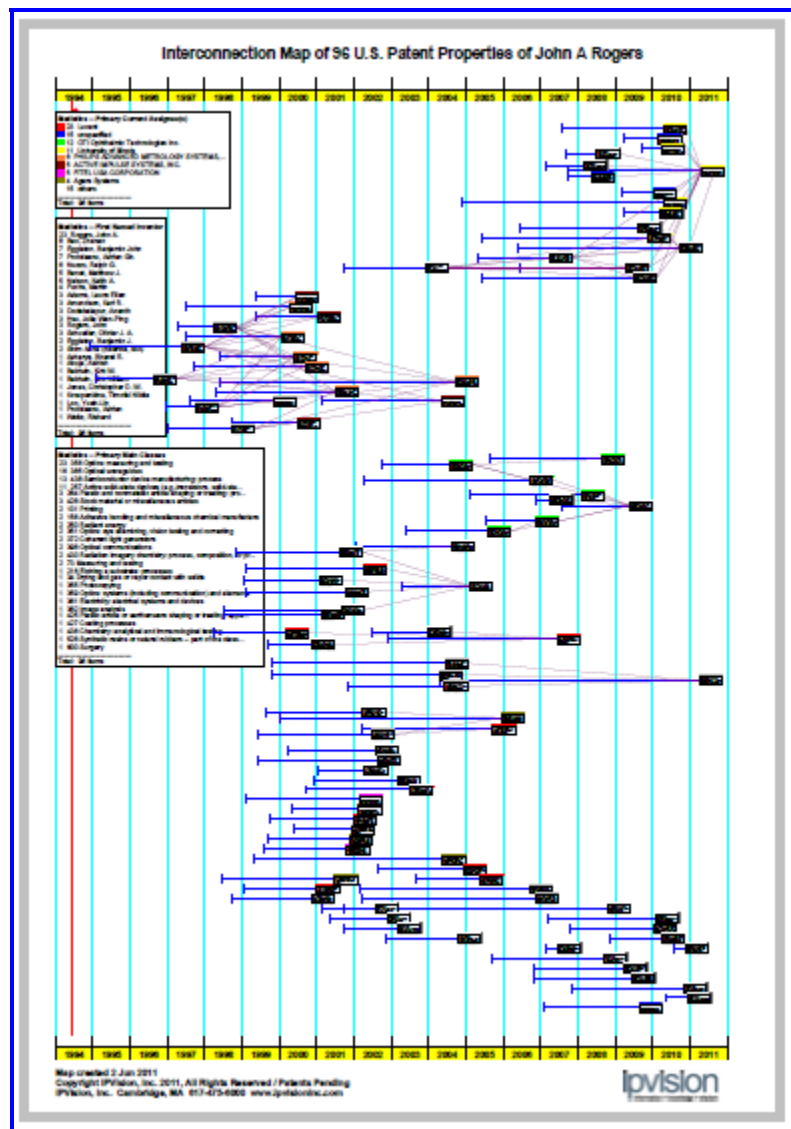
[View Patents on See-the-Forest™](#) ► [Link to List](#)

### **3.1 ROGERS PATENT PORTFOLIO MAP**

The following is an IPVision [Patent Interconnection Map™](#) showing the patent citation relationships among the 96 U.S. patent properties (73 issued U.S. patents and 23 published pending U.S. applications) of Dr. John A. Rogers:

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Report on Patent Portfolio of John A. Rogers**

**Patent Citation Interconnection Map™ of Dr. John A. Rogers**



**Statistics -- Primary Current Assignee(s)**

- 23 Lucent
- 15 unspecified
- 12 OTI Ophthalmic Technologies Inc.
- 11 University of Illinois
- 6 PHILIPS ADVANCED METROLOGY SYSTEMS, INC.
- 5 ACTIVE IMPULSE SYSTEMS, INC.
- 5 FITEL USA CORPORATION
- 4 Agere Systems
- 15 others

---

Total: 96 Items

**Patent Citation Interconnection Map™:**  
This IPVision Patent Citation Interconnection Map™ shows the U.S. patent properties of Dr. John A. Rogers on a timeline from left to right.

Note: For information about Reading IPVision Maps, see Appendix A

[View Live IPVision Map™](#) ► [Link to Map](#)

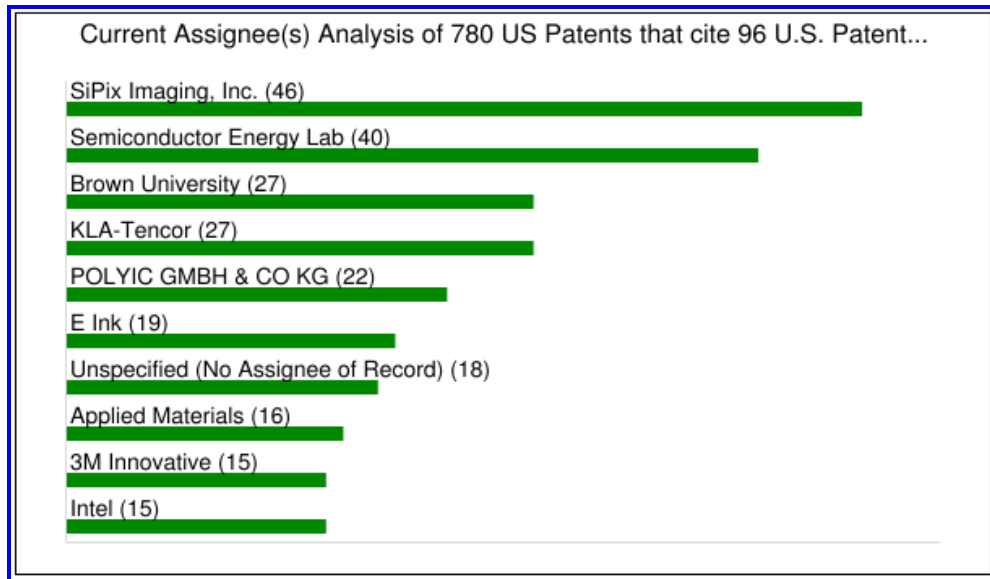
### 3.2 PATENTS CITING THE ROGERS PATENTS

The Rogers Patents are cited by 780 other U.S. patents as prior patent art ("Forward Citation Patents").

[View "List of Forward Citation Patents" on See-the-Forest™](#) ► [Link to List](#)

According to the U.S. Patent and Trademark Office records, the Top 10 Current Assignee/Owners of the Forward Citation Patents are:

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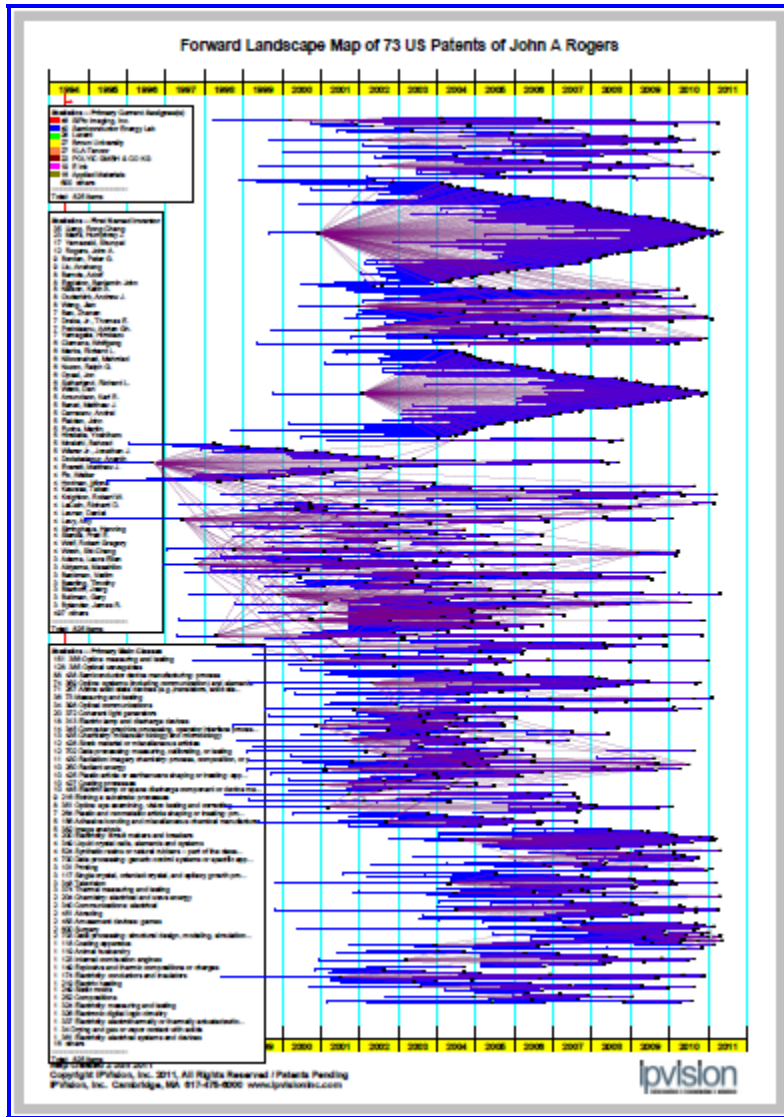
View “Forward Citation Assignee Analysis™” on *See-the-Forest™* ► [Link to Analysis](#)

### **3.3 ROGERS FORWARD CITATION PATENT LANDSCAPE MAP**

The following is an IPVision Forward Citation Patent Landscape Map™ showing the Rogers Patents and the other U.S. patents that cite the Rogers Patents (“Forward Citation Patents” or “FCs”) as of the date of this report:

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Report on Patent Portfolio of John A. Rogers**

Forward Citation Patent Landscape Map™ of Rogers Patents



| Statistics – Primary Current Assignee(s) |                          |
|--|--------------------------|
| 48                                       | SiPix Imaging, Inc.      |
| 40                                       | Semiconductor Energy Lab |
| 28                                       | Lucent                   |
| 27                                       | Brown University         |
| 27                                       | KLA-Tencor               |
| 22                                       | POLYIC GMBH & CO KG      |
| 19                                       | E Ink                    |
| 16                                       | Applied Materials        |
| 600                                      | others                   |
| -----                                    |                          |
| Total:                                   | 825 Items                |

**Forward Citation Patent Landscape Map™:** This IPVision Forward Citation Patent Landscape Map™ shows the 73 Issued U.S. Rogers Patents on a timeline from left to right. The Rogers Patents are shaded in yellow. To the right of the Rogers Patents are the Forward Citation Patents that cite the Rogers Patents as “prior patent art”.

Note: For information about Reading IPVision Maps, see Appendix A

[View Live IPVision Map™ ▶](#)

[Link to Map](#)

### 3.4 RELATIVE CITATION OF ROGERS PATENTS

As mentioned above, the Rogers Patents are cited as prior art by 780 other patents (“Forward Citation Patents”). In order to understand the relative importance from a citation viewpoint of the Rogers Patents it is instructive to look at the total number of *citations* by the Forward Citation Patents.

**Cohen-Boyer Example.** As noted above, the famous Cohen-Boyer patent from Stanford had been cited by 227 patents as of December 2009. These 227 patents have a total of 3,121 citations of other patents or a mean average of 13.7 citations per Forward Citation Patent. However, if we look only at the first 10 years after the Cohen-Boyer patent was issued and the biotech industry was still very much in development mode, there were 117 Forward Citation Patents for the Cohen-Boyer Patent with a mean average of 3.7 citations each, i.e. the Cohen-Boyer patent accounted for approximately 27% (=1 / 3.7) of all patents cited by the Forward Citation Patents, clearly an indication of its relative importance.

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| Cohen-Boyer Patent: Relative Citation Importance |           |             |           |                 |                 |
|--|-----------|-------------|-----------|-----------------|-----------------|
| Inventor   | # Patents | #FC Patents | FC/Patent | Total Citations | Mean #Citations |
| Cohen-Boyer                                      | 1         | 227         | 227       | 3,121           | 13.7            |
| Cohen-Boyer<br>10 Years                          | 1         | 117         | 117       | 437             | 3.7             |

These statistics for the Rogers Portfolio are:

| Rogers Portfolio: Relative Citation Importance |                  |             |           |                 |                 |
|--|------------------|-------------|-----------|-----------------|-----------------|
| Inventor                                       | # Issued Patents | #FC Patents | FC/Patent | Total Citations | Mean #Citations |
| Rogers   | 73               | 780         | 10.68     | 42,369          | 54.3            |

On these metrics the Rogers portfolio appears to be less unique from a patent perspective than the Cohen-Boyer patent – i.e., each patent that cites a Rogers patent also cites another 54.3 patents on average.

CAVEAT: these statistical comparisons are directional only. Patent citation practices have changed over the years since the Cohen-Boyer patent was issued in December 1980. In addition, the rates of patent citation vary in different technical fields and at different times in the evolution of a technology area.

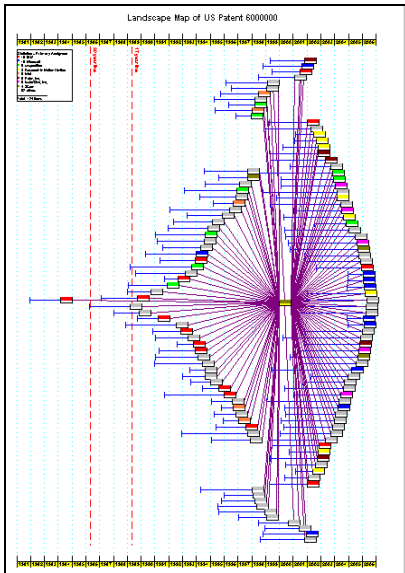


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**APPENDICES AND EXHIBITS**

**APPENDIX A – HOW TO READ AN IPVISION MAP**

An IPVision Map is a visual representation of the relationships between objects. The following is an example of a Landscape Map for a single U.S. Patent:



This Landscape Map is of U.S. Patent 6,000,000 entitled “Extendible method and apparatus for synchronizing multiple files on two different computer systems”. It is the basic patent for the Palm Pilot software.

The horizontal X axis is “time”

Patent 6000000 is in the middle of the “fan”. The lines going backward (to the left) are the patents cited by Patent 6000000 and the lines going forward (to the right) show the patents which cite Patent 6000000.

The details of an IPVision Map are explained in more detail below

