

PATENT ASSIGNMENT

Electronic Version v1.1

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SUBMISSION TYPE:

NEW ASSIGNMENT

NATURE OF CONVEYANCE:

ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
Jyh-Cherng Sheu	11/13/2005
Manampathy G. Giridharan	05/20/2005

RECEIVING PARTY DATA

Name:	CFD Research Corporation
Street Address:	Cummings Research Park, 215 Wynn Drive
City:	Huntsville
State/Country:	ALABAMA
Postal Code:	35805

PROPERTY NUMBERS Total: 8

Property Type	Number
Application Number:	10072605
Application Number:	10691341
Application Number:	10746646
Application Number:	10914525
Application Number:	10945416
Application Number:	10952108
PCT Number:	US0431803
Application Number:	11011366

CORRESPONDENCE DATA

Fax Number: (505)243-2542

*Correspondence will be sent via US Mail when the fax attempt is unsuccessful.*

Phone: (505)998-6132

Email: info@Peacocklaw.com

Correspondent Name: Philip D. Askenazy, Ph.D.

Address Line 1: POB 26927

PATENT

500061471

REEL: 016799 FRAME: 0487

CH \$320.00 10072605

Address Line 4: Albuquerque, NEW MEXICO 87125-6927

ATTORNEY DOCKET NUMBER:

31508

NAME OF SUBMITTER:

Jeffrey D. Myers

Total Attachments: 8

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## **ASSIGNMENT OF INVENTION AND PATENT RIGHTS**

For valuable consideration received or to be received, and hereby acknowledged, Manampathy G. Giridharan of 5733 Thornberry Court, Mason, Ohio 54040-7755, and Jyh-Cherng Sheu of 16F-2, No. 6, Lane 179, Wuling Road, Hsinchu City 300, TAIWAN, (hereinafter referred to as "Inventors"), hereby sell, assign and transfer unto CFD Research Corporation, Cummings Research Park, 215 Wynn Drive, Huntsville, Alabama 35805, its successors and assigns (hereinafter referred to as "Assignee"), the entire interest for the United States of America and all foreign countries, including all rights of priority under the international conventions and treaties, in and to certain inventions or improvements as follows:

1) *Direct Write™ System*, described in an application filed in the United States Patent and Trademark Office on February 5, 2002, and given U.S. Patent Application Serial No. 10/072,605.

Inventors: Michael J. Renn, Bruce H. King, Manampathy G. Giridharan, Jyh-Cherng Sheu;

2) *Particle Guidance System*, described in an application filed in the United States Patent and Trademark Office on October 21, 2003, and given U.S. Patent Application Serial No. 10/691,341.

Inventors: Michael J. Renn, Gregory J. Marquez, Bruce H. King, Manampathy G. Giridharan, Jyh-Cherng Sheu;

3) *Apparatuses, Methods and Precision Spray Processes for Direct Write and Maskless Mesoscale Material Deposition*, described in an application filed in the United States Patent and Trademark Office on December 23, 2003, and given U.S. Patent Application Serial No. 10/746,646.

Inventors: Michael J. Renn, Bruce H. King, Marcelino Essien, David M. Keicher, Gregory J. Marquez, Manampathy G. Giridharan, Jyh-Cherng Sheu;

4) *Direct Write™ System*, described in an application filed in the United States Patent and Trademark Office on August 9, 2004, and given U.S. Patent Application Serial No. 10/914,525. Inventors:

Michael J. Renn, Bruce H. King, Manampathy G. Giridharan, Jyh-Cherng Sheu;

5) *Direct Write™ System*, described in an application filed in the United States Patent and Trademark Office on September 20, 2004, and given U.S. Patent Application Serial No. 10/945,416.

Inventors: Michael J. Renn, Manampathy G. Giridharan, Jyh-Cherng Sheu;

6) *Laser-Processing for Heat-Sensitive Mesoscale Deposition*, described in an application filed in the United States Patent and Trademark Office on September 27, 2004, and given U.S. Patent Application Serial No. 10/952,108. Inventors: Michael J. Renn, Bruce H. King, Marcelino Essien, Manampathy G. Giridharan, Jyh-Cherng Sheu;

7) *Laser Processing for Heat-Sensitive Mesoscale Deposition*, described in an application filed in the U.S. Receiving Office of the Patent Cooperation Treaty on September 27, 2004, and given Patent Cooperation Treaty Application Serial No. PCT/US04/31803. Applicants: Optomec Design Company, Michael J. Renn, Bruce H. King, Marcelino Essien, Manampathy G. Giridharan, Jyh-Cherng Sheu;

8) *Laser Treatment Process for Maskless Low-Temperature Deposition of Electronic Materials*, described in an application filed in the Taiwan Patent Office on September 24, 2004, and given Taiwan Serial No. 93128970. Inventors: Michael J. Renn, Bruce H. King, Marcelino Essien, Manampathy G. Giridharan, Jyh-Cherng Sheu;

9) *Annular Aerosol Jet Deposition Using an Extended Nozzle*, described in an application filed in the United States Patent and Trademark Office on December 13, 2004, and given U.S. Patent Application Serial No. 11/011,366. Inventors: Bruce H. King, Michael J. Renn, Marcelino Essien, Gregory J. Marquez, Manampathy G. Giridharan, Jyh-Cherng Sheu;

and in all Letters Patent of the United States and all foreign countries which may or shall be granted on said inventions, or any parts thereof, or on said applications, or on any provisional, utility, divisional, continuing, continuation-in-part, reissue, reexamination or other applications based in whole or in part thereon. And Inventors agree hereafter to execute all applications, amended specifications, deeds or other instruments, and to do all acts necessary or proper in Assignee's sole discretion to secure to Assignee the grant of Letters Patent in the United States and/or in other countries as Assignee may determine in its sole discretion, with specifications and claims in such form as shall be approved by Assignee's counsel, and to vest and confirm in Assignee the legal and equitable title and full use and benefit of all such patents.

Inventors further agree with Assignee that this Assignment covers all processes, specifications, procedures, techniques and other knowledge and information now or hereafter known to Inventors which are not in the public domain and which relate to the above-mentioned inventions or improvements, their manufacture, uses or embodiments, or other matters (the "Related Know-How"). Inventors agree to disclose or provide all Related Know-How to Assignee when discovered or upon request.

Inventors further covenant that Assignee will, upon its request, be provided promptly with all pertinent facts and documents relating to said applications, said inventions and said Letters Patent and legal equivalents in foreign countries as may be known and accessible to Inventors and will testify as to the same in any interference or litigation related thereto and will promptly execute and deliver to Assignee or its legal representative any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said applications, said inventions and said Letters Patent and said equivalents thereof in any foreign country which may be necessary or desirable to carry out the purposes thereof.

Inventors' rights in the above-mentioned inventions or improvements and Related Know-How and any patent application(s) and Letters Patent thereon have not been previously assigned, mortgaged or otherwise encumbered, and Inventors have full right, power and authority to assign all such rights to Assignee hereunder.

As used herein, the terms "Inventors" and "Assignee" shall include such parties and their heirs, administrators, estates, successors and assigns of every kind.

Inventors hereby authorize and request the Director of the United States Patent and Trademark Office, and all foreign countries' equivalent officials, to issue such Letters Patent as shall be granted on said application or applications based thereon to Assignee.

DATED this \_\_\_\_ day of \_\_\_\_\_, 2005, effective as of February 4, 2002.

---

Manampathy G. Giridharan

STATE OF OHIO )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

This instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2005, by  
Manampathy G. Giridharan.

My commission expires: \_\_\_\_\_

Notary Public

\_\_\_\_\_  
SEAL

DATED this 13th day of November, 2005, effective as of February 4, 2002.

Jyh-Cherng Sheu  
Jyh-Cherng Sheu

APOSTILE

(Convention de La Haye Du October 5, 1961)

Country: Taiwan

This public document has been signed by Jyh-Cherng Sheu acting  
in his own behalf in the capacity of inventor/assignor, bears the  
seal/stamp of

\_\_\_\_\_  
Name of Notary Public

Certified

at \_\_\_\_\_ by  
\_\_\_\_\_  
(name of Notary Public), Seal/Stamp  
No. \_\_\_\_\_.

[SEAL/STAMP] \_\_\_\_\_  
Signature, Notary Public

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and in all Letters Patent of the United States and all foreign countries which may or shall be granted on said inventions, or any parts thereof, or on said applications, or on any provisional, utility, divisional, continuing, continuation-in-part, reissue, reexamination or other applications based in whole or in part thereon. And Inventors agree hereafter to execute all applications, amended specifications, deeds or other instruments, and to do all acts necessary or proper in Assignee's sole discretion to secure to Assignee the grant of Letters Patent in the United States and/or in other countries as Assignee may determine in its sole discretion, with specifications and claims in such form as shall be approved by Assignee's counsel, and to vest and confirm in Assignee the legal and equitable title and full use and benefit of all such patents.



Inventors further agree with Assignee that this Assignment covers all processes, specifications, procedures, techniques and other knowledge and information now or hereafter known to Inventors which are not in the public domain and which relate to the above-mentioned inventions or improvements, their manufacture, uses or embodiments, or other matters (the "Related Know-How"). Inventors agree to disclose or provide all Related Know-How to Assignee when discovered or upon request.

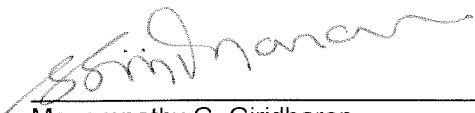
Inventors further covenant that Assignee will, upon its request, be provided promptly with all pertinent facts and documents relating to said applications, said inventions and said Letters Patent and legal equivalents in foreign countries as may be known and accessible to Inventors and will testify as to the same in any interference or litigation related thereto and will promptly execute and deliver to Assignee or its legal representative any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said applications, said inventions and said Letters Patent and said equivalents thereof in any foreign country which may be necessary or desirable to carry out the purposes thereof.

Inventors' rights in the above-mentioned inventions or improvements and Related Know-How and any patent application(s) and Letters Patent thereon have not been previously assigned, mortgaged or otherwise encumbered, and Inventors have full right, power and authority to assign all such rights to Assignee hereunder.

As used herein, the terms "Inventors" and "Assignee" shall include such parties and their heirs, administrators, estates, successors and assigns of every kind.

Inventors hereby authorize and request the Director of the United States Patent and Trademark Office, and all foreign countries' equivalent officials, to issue such Letters Patent as shall be granted on said application or applications based thereon to Assignee.

DATED this 20<sup>th</sup> day of MAY, 2005, effective as of February 4, 2002.

  
\_\_\_\_\_  
Manampathy G. Giridharan

STATE OF OHIO )  
COUNTY OF Hamilton ) ss.

This instrument was acknowledged before me this 26<sup>th</sup> day of May, 2005, by  
Manampathy G. Giridharan.

My commission expires: NEIL DANIEL PETERSON  
Notary Public, State of Ohio  
My Commission Expires November 1, 2008  
SEAL.

DATED this \_\_\_\_ day of \_\_\_\_\_, 2005, effective as of February 4, 2002.

\_\_\_\_\_  
Jyh-Cherng Sheu

APOSTILE  
(Convention de La Haye Du October 5, 1961)

Country: Taiwan

This public document has been signed by Jyh-Cherng Sheu acting  
in his own behalf in the capacity of inventor/assignor, bears the  
seal/stamp of

\_\_\_\_\_  
Name of Notary Public

Certified

at \_\_\_\_\_ by  
\_\_\_\_\_  
(name of Notary Public), Seal/Stamp  
No. \_\_\_\_\_

[SEAL/STAMP] \_\_\_\_\_  
Signature, Notary Public

G:\Diane\Optomec\cfd-rc-inventors-assign-knowhow\_pat.doc