

US DEPT OF COMMERCE
Patent & Trademark Office

101885371


To the honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies): Federico Capasso, Alfred Yi Cho, Raffaele Colombelli Claire F. Gmachl Hock Min Ng and Deborah Lee Sivco Additional name(s) of conveying party(ies) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		2. Name and address of receiving party(ies): Name: <u>Lucent Technologies Inc.</u> Internal Address: _____ _____ _____ Street Address: <u>600 Mountain Avenue</u> <u>P.O. Box 636</u> City: <u>Murray Hill</u> State: <u>NJ</u> ZIP: <u>07974-0636</u> Additional name(s) & address(es) attached? <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No	
3. Nature of conveyance: <input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name <input type="checkbox"/> Other _____ Execution Date: <u>September 7, 2001</u>			
4. Application number(s) or patent number(s): If this document is being filed together with a new application, the execution date of the application is: _____ A. Patent Application No.(s) <u>Serial No. 09/883,542</u> <u>Filed on June 18, 2001</u> Patent No.(s) _____ Additional numbers attached? <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No			
5. Name and address of party to whom correspondence concerning document should be mailed: Name: <u>Michael J. Urbano</u> Internal Address: _____ _____ _____ Street Address: <u>1445 Princeton Drive</u> _____ City: <u>Bethlehem</u> State: <u>PA</u> ZIP: <u>18017-9166</u>		6. Total number of applications and patents involved <u>1</u> 7. Total fee (37 CFR 3.41) \$ <u>40</u> <input type="checkbox"/> Enclosed <input checked="" type="checkbox"/> Authorized to be charged to deposit account 8. Deposit Account Number: <u>12-2325</u> (Attach duplicate copy of this page if paying by deposit account)	

DO NOT USE THIS SPACE

9. **Statement and signature.**
To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Michael J. Urbano
 Name of Person Signing


 Signature

10/09/01
 Date

Total number of pages including cover sheet, attachments, and document: 5

**Mail documents to be recorded with required cover sheet information to:
Commissioner of Patents & Trademarks, Box Assignments
Washington, DC 20231**

INVENTOR CASE NAME: F. Capasso 68-107-2-21-3-37

ASSIGNMENT AND AGREEMENT

For value received, we, **Federico Capasso**, of Westfield in the County of Union and State of New Jersey, **Alfred Yi Cho**, of Summit in the County of Union and State of New Jersey, **Raffaele Colombelli**, of Hoboken in the County of Hudson and State of New Jersey, **Claire F. Gmachl**, of New Providence in the County of Union and State of New Jersey, **Hock Min Ng**, of Mountainside in the County of Union and State of New Jersey, and **Deborah Lee Sivco**, of Warren in the County of Somerset and State of New Jersey, hereby sell, assign and transfer to Lucent Technologies Inc., a corporation of the State of Delaware, having an office at 600 Mountain Avenue, P.O. Box 636, Murray Hill, New Jersey 07974-0636, U.S.A., and its successors, assigns and legal representatives, the entire right, title and interest, for the United States of America, in and to certain inventions related to **Engineering the Gain/Loss Profile of Intersubband Optical Devices Having Heterogeneous Cascades** described in an application for Letters Patent of the United States Serial No. 09/883,542 filed on June 18, 2001, and all the rights and privileges in said application and under any and all Letters Patent that may be granted in the United States for said inventions; and we also concurrently hereby sell, assign and transfer to Lucent Technologies Inc. the entire right, title and interest in and to said inventions for all countries foreign to the United States, including all rights of priority arising from the application aforesaid, and all the rights and privileges under any and all forms of protection, including Letters Patent, that may be granted in said countries foreign to the United States for said inventions.

We authorize Lucent Technologies Inc. to make application for such protection in its own name and maintain such protection in any and all countries foreign to the United States, and to invoke and claim for any application for patent or other form of protection for said inventions, without further authorization from us, any and all benefits, including the right of priority provided by any and all treaties, conventions, or agreements.

We hereby consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of Lucent Technologies Inc. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

We request that any and all patents for said inventions be issued to Lucent Technologies Inc. in the United States and in all countries foreign to the United States, or to such nominees as Lucent Technologies Inc. may designate.

We agree that, when requested, we shall, without charge to Lucent Technologies Inc. but at its expense, sign all papers, and do all acts which may be necessary, desirable or convenient in connection with said applications, patents, or other forms of protection.




 Federico Capasso

Date: 9/7/2001

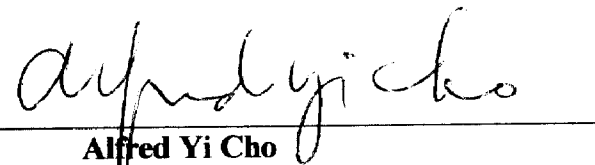
United States of America)
 State of New Jersey) ss.:
 County of Union)

On this 7th day of September, 20 01, before me personally came **Federico Capasso**, to me known to be the individual described in and who executed the foregoing instrument, and acknowledged execution of the same.

PATRICIA M. LOTT
NOTARY PUBLIC OF NEW JERSEY
 Registered In Somerset County
 My Commission Expires March 24, 2003



 Notary Public




 Alfred Yi Cho

Date: 9/7/2001

United States of America)
 State of New Jersey) ss.:
 County of Union)

On this 7th day of September, 20 01, before me personally came **Alfred Yi Cho**, to me known to be the individual described in and who executed the foregoing instrument, and acknowledged execution of the same.



 Notary Public

PATRICIA M. LOTT
NOTARY PUBLIC OF NEW JERSEY
 Registered In Somerset County
 My Commission Expires March 24, 2003

Raffaele Colombelli**Raffaele Colombelli**Date 9/7/2001

United States of America)

State of New Jersey) ss.:County of Union)

On this 7th day of September, 2001, before me personally came **Raffaele Colombelli**, to me known to be the individual described in and who executed the foregoing instrument, and acknowledged execution of the same.

PATRICIA M. LOTT
NOTARY PUBLIC OF NEW JERSEY

Registered In Somerset County
 My Commission Expires March 24, 2003

Patricia M. Lott

Notary Public

Claire F. Gmachl**Claire F. Gmachl**Date 9/7/01

United States of America)

State of New Jersey) ss.:County of Union)

On this 7th day of September, 2001, before me personally came **Claire F. Gmachl**, to me known to be the individual described in and who executed the foregoing instrument, and acknowledged execution of the same.

Patricia M. Lott

Notary Public

PATRICIA M. LOTT
NOTARY PUBLIC OF NEW JERSEY

Registered In Somerset County
 My Commission Expires March 24, 2003

X/92 for Min

Hock Min Ng

Date: 9/7/01

United States of America)

State of *New Jersey*) ss.:

County of *Union*)

On this 7th day of September, 20 01, before me personally came **Hock Min Ng**, to me known to be the individual described in and who executed the foregoing instrument, and acknowledged execution of the same.

Patricia M. Lott

Notary Public

PATRICIA M. LOTT
NOTARY PUBLIC OF NEW JERSEY

Registered In Somerset County

My Commission Expires March 24, 2003

Deborah Lee Sivco

Deborah Lee Sivco

Date: 9-7-01

United States of America)

State of *New Jersey*) ss.:

County of *Union*)

On this 7th day of September, 20 01, before me personally came **Deborah Lee Sivco**, to me known to be the individual described in and who executed the foregoing instrument, and acknowledged execution of the same.

Patricia M. Lott

Notary Public

PATRICIA M. LOTT
NOTARY PUBLIC OF NEW JERSEY

Registered In Somerset County

My Commission Expires March 24, 2003

Lucent Technologies Inc.
101 Crawfords Corner Rd. (3J-220)
PO Box 3030
Holmdel, NJ 07733-3030

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

Patent Application

Inventors(s): Federico Capasso
Alfred Yi Cho
Raffaele Colombelli
Claire F. Gmachl
Hock Min Ng
Deborah Lee Sivco

Case: 68-107-2-21-3-37

Serial No.: 09/883,542 **Group Art Unit:** Not Yet Assigned

Filing Date: June 18, 2001 **Examiner:** Not Yet Assigned

Title: Engineering the Gain/Loss Profile of Intersubband Optical Devices
Having Heterogeneous Cascades

ASSISTANT COMMISSIONER FOR PATENTS WASHINGTON, DC 20231

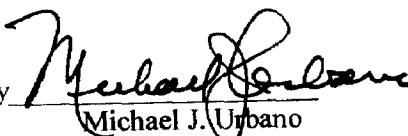
SIR:

RECORDATION OF ASSIGNMENTS

Enclosed herewith is an assignment of all of the above-named inventors to Lucent Technologies Inc. The assignment is accompanied by an original and one copy of a Recordation Form Cover Sheet (PTO-1595). Please record the assignment.

The assignment recordation fee of \$40.00 may be charged to **Deposit Account 12-2325** of Lucent Technologies Inc. In the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge or credit the same account as required to correct the error.

Respectfully,

By 
Michael J. Urbano
Attorney for Applicant(s)
Reg. No. 24522
610-691-7710

Date: 10/09/01