501969084 06/26/2012

PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	

CONVEYING PARTY DATA

Name	Execution Date
Berardi Sensale-Rodriquez	06/20/2012
Huili (Grace) Xing	06/20/2012
Rusen Yan	06/20/2012
Michelle M. Kelly	06/20/2012
Tian Fang	06/21/2012
Debdeep Jena	06/20/2012
Lei Liu	06/20/2012

RECEIVING PARTY DATA

Name:	University of Notre Dame du Lac	
Street Address:	511 Main Building	
City:	Notre Dame	
State/Country:	INDIANA	
Postal Code:	46556	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13529934

CORRESPONDENCE DATA

Fax Number: (312)456-8435 Phone: 3124568400

Email: chiipmail@gtlaw.com

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent

via US Mail.

Correspondent Name: Keith R. Jarosik
Address Line 1: 77 W. Wacker Drive

Address Line 2: Greenberg Traurig, LLP - Suite 3100
Address Line 4: Chicago, ILLINOIS 60601-1732

PATENT

REEL: 028446 FRAME: 0220

\$40.00 1352

501969084 REEL

ATTORNEY DOCKET NUMBER:	135404.018000
NAME OF SUBMITTER:	Keith R. Jarosik
Total Attachments: 7 source=Assignment13529934#page1.tif source=Assignment13529934#page2.tif source=Assignment13529934#page3.tif source=Assignment13529934#page4.tif source=Assignment13529934#page5.tif source=Assignment13529934#page6.tif source=Assignment13529934#page7.tif	

PATENT REEL: 028446 FRAME: 0221

WHEREAS, BERARDI SENSALERODRIGUEZ, whose office address appears below (hereinafter referred to as ASSIGNOR), is an employee of the University of Notre Dame du Lac, with an address at 511 Main Building, Notre Dame, Indiana, 46556 (hereinafter referred to as ASSIGNEE) and has certain obligations to disclose and assign patentable new inventions to ASSIGNEE; and

WHEREAS, ASSIGNOR has invented a new and useful invention entitled: "Terahertz Wave Amplitude Modulation", Docket Number UND 12-011 (hereinafter referred to as the INVENTION) for which a United States Patent Application title "Method and Apparatus for Terahertz Wave Amplitude Modulation" will be filed on or about June 21, 2012; and

WHEREAS, Assignee is desirous of acquiring the entire right, title and interest in and to the Invention in the United States and throughout the world; and

WHEREAS, ASSIGNOR is willing to assign his entire right, title, and interest in and to the INVENTION to ASSIGNEE;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, I, ASSIGNOR, by these presents do sell, assign and transfer unto said ASSIGNEE, the entire right, title and interest in and to said invention and applications throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said INVENTION.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said invention, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said invention, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to identify and communicate to ASSIGNEE at ASSIGNEE's request documents and information concerning the invention that are within ASSIGNOR's possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument.

ASSIGNOR also agrees, without further consideration and at ASSIGNEE'S expense, to transfer the right to sue for past infringement to ASSIGNEE and at ASSIGNEE'S request documents and information concerning the enforcement of the right to sue within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the right to sue of any patent encompassed within the terms of this instrument.

ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE'S sole use and behalf; and for the use and behalf of ASSIGNEE'S legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Berardi SensaleRodriguez 228 Stinson-Remick	Signature		
Notre Dame, IN 46556	June 20, 2012		
	Date		
	(Notarization preferred but not required)		
Before me personally appeared said and deed this day of	and acknowledges this instrument to be his (her) free act		
	Notary Public		

WHEREAS, HUILI (GRACE) XING, whose office address appears below (hereinafter referred to as ASSIGNOR), is an employee of the University of Notre Dame du Lac, with an address at 511 Main Building, Notre Dame, Indiana, 46556 (hereinafter referred to as ASSIGNEE) and has certain obligations to disclose and assign patentable new inventions to ASSIGNEE; and

WHEREAS, ASSIGNOR has invented a new and useful invention entitled: "Terahertz Wave Amplitude Modulation", Docket Number UND 12-011 (hereinafter referred to as the Invention) for which a United States Patent Application title "Method and Apparatus for Terahertz Wave Amplitude Modulation" will be filed on or about June 21, 2012; and

WHEREAS, ASSIGNEE is desirous of acquiring the entire right, title and interest in and to the Invention in the United States and throughout the world; and

WHEREAS, ASSIGNOR is willing to assign his entire right, title, and interest in and to the INVENTION to ASSIGNEE;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, I, ASSIGNOR, by these presents do sell, assign and transfer unto said ASSIGNEE, the entire right, title and interest in and to said invention and applications throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said inventorion.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said INVENTION, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said INVENTION, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to identify and communicate to ASSIGNEE at ASSIGNEE's request documents and information concerning the INVENTION that are within ASSIGNOR's possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument.

ASSIGNOR also agrees, without further consideration and at ASSIGNEE'S expense, to transfer the right to sue for past infringement to ASSIGNEE and at ASSIGNEE'S request documents and information concerning the enforcement of the right to sue within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the right to sue of any patent encompassed within the terms of this instrument.

ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE'S sole use and behalf, and for the use and behalf of ASSIGNEE'S legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

	And Jing
Huili (Grace) Xing	
275 Fitzpatrick Hall Notre Dame, IN 46556	Signature
Notre Dame, 114 40556	June 20, 2012
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	(Notarization preferred but not required)
Before me personally appeared saidand deed thisday of	and acknowledges this instrument to be his (her) free act
	Notary Public
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WHEREAS, Rusen Yan, whose office address appears below (hereinafter referred to as Assignor), is an employee of the University of Notre Dame du Lac, with an address at 511 Main Building, Notre Dame, Indiana, 46556 (hereinafter referred to as Assignee) and has certain obligations to disclose and assign patentable new inventions to Assignee; and

WHEREAS, Assignor has invented a new and useful invention entitled: "Terahertz Wave Amplitude Modulation", Docket Number UND 12-011 (hereinafter referred to as the Invention) for which a United States Patent Application title "Method and Apparatus for Terahertz Wave Amplitude Modulation" will be filed on or about June 21, 2012; and

WHEREAS, ASSIGNEE is desirous of acquiring the entire right, title and interest in and to the INVENTION in the United States and throughout the world; and

WHEREAS, Assignor is willing to assign his entire right, title, and interest in and to the INVENTION to Assignee;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, I, ASSIGNOR, by these presents do sell, assign and transfer unto said ASSIGNEE, the entire right, title and interest in and to said invention and applications throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation—in-part and resiste of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded Assignor under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, Assignor hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said INVENTION, including additional documents that may be required to affirm the rights of Assignee in and to said INVENTION, all without further consideration. Assignee also agrees, without further consideration and at Assignee's expense, to identify and communicate to Assignee at Assignee's request documents and information concerning the INVENTION that are within Assignor's possession or control, and to provide further assurances and testimony on behalf of Assignee that lawfully may be required of Assignor in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument.

ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to transfer the right to sue for past infringement to ASSIGNEE and at ASSIGNEE's request documents and information concerning the enforcement of the right to sue within ASSIGNOR's possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the right to sue of any patent encompassed within the terms of this instrument.

Assignor's obligations under this instrument shall extend to Assignor's heirs, executors, administrators and other legal representatives.

Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to Assignee of the entire right, title and interest in and to the same, for Assignee's sole use and behalf, and for the use and behalf of Assignee's legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made.

Rusen Yan 228 Stinson-Remick Notre Dame, IN 46556		. ,		Signature
*			. :	Date Date
				(Notarization preferred but not required
Before me personally appeare and deed this do	ed said	·	, 2006.	and acknowledges this instrument to be his (her) free ac
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	.•	,		Notary Public

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SOW THE FORE to good and squable consideration, recept of which is heart, action indied. It is expected the entire right tile and interest in and to said not select and applications throughout the finest State. Amortize replacing are and all finited States Letters Paint granted on any distance, continuation, continuation, or part and respect of specialisms and the entire right into and interest in and respect throughout the world, including to right to each paints and to show confidence or expect thereof and to claim promise partially register accorded. Assessment the terms of the Paints and Convention and all other according to members and transact and the ownering title as a survey or and the contemporary and partially according to additive, units models, promise of imponution, recall additive and recently models, promise of imponution, recall additive and recently contribute which has be granted throughout the regist of said into store.

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Assessment obligations under this instrument shall extend to Assumon's light, excensor, administrators and other legal reconstructions.

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WHEREAS, TIAN FANG, whose office address appears below (hereinafter referred to as ASSIGNOR), is an employee of the University of Notre Dame, Indiana, 46556 (hereinafter referred to as ASSIGNOR) and has nertain obligations to disclose and assign patentable new inventions to ASSIGNEE, and

WHEREAS, ASSIGNOR has invented a new and useful invention emitted: "Terahertz Wave Amplitude Modulation", Docket Number UND 12-011 (hereinafter referred to as the INVENTION) for which a United States Patent Application title "Method and Apparatus for Terahertz Wave Amplitude Modulation" will be filed on or about June 21, 2012; and

WHEREAS, ASSIGNED is decirous of acquiring the entire right, title and interest in and to the ENTENTEN in the United States and throughout the world; and

WHEREAS, ASSIGNOR is willing to assign his entire right, title, and interest in and to the INVENTION to ASSIGNEE;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged. I. ASSIGNOR, by these pretents do sell, assign and transfer unto said ASSIGNOR, the entire right, title and interest in and to said INVENTION and applications throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and raissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said INVENTION.

ALSO, Assessor bereby agrees to execute any documents that legally may be required in connection with the filing, proceeding and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said INVENTION, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said INVENTION, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNOE's expense, to identify and communicate to ASSIGNOE at ASSIGNOE and information concerning the INVENTION that are within ASSIGNOE's possession or centrol, and to provide further assurances and testimony on behalf of ASSIGNOE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument.

ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to transfer the right to sue for past infringement to ASSIGNEE and at ASSIGNEE's request documents and information concerning the enforcement of the right to sue within ASSIGNOR's possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the right to sue of any patent encompassed within the terms of this instrument.

ASSIGNOR'S obligations under this instrument shall extend to Assignor's heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE's sole use and behalf; and for the use and behalf of ASSIGNEE's legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNEE had this assignment and sale not been made.

Tian Fang
131 Stinson-Remiek
Notre Dame, IN 46556

Signature

Object 2 2012

Date

Commission preferred from the required:

Before me personally appeared said and deed this day of 2006,

Notary Public

WHEREAS, DEBDEEP JENA, whose office address appears below (hereinafter referred to as ASSIGNOR), is an employee of the University of Notre Dame du Lac, with an address at 511 Main Building, Notre Dame, Indiana, 46556 (hereinafter referred to as ASSIGNEE) and has certain obligations to disclose and assign patentable new inventions to ASSIGNEE; and

WHEREAS, ASSIGNOR has invented a new and useful invention entitled: "Terahertz Wave Amplitude Modulation", Docket Number UND 12-011 (hereinafter referred to as the INVENTION) for which a United States Patent Application title "Method and Apparatus for Terahertz Wave Amplitude Modulation" will be filed on or about June 21, 2012; and

WHEREAS, ASSIGNEE is desirous of acquiring the entire right, title and interest in and to the INVENTION in the United States and throughout the world; and

WHEREAS, Assignor is willing to assign his entire right, title, and interest in and to the INVENTION to ASSIGNEE;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, I, ASSIGNOR, by these presents do sell, assign and transfer unto said ASSIGNEE, the entire right, title and interest in and to said invention and applications throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, Assignor hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said INVENTION, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said INVENTION, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to identify and communicate to ASSIGNEE at ASSIGNEE's request documents and information concerning the INVENTION that are within ASSIGNOR's possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument.

ASSIGNOR also agrees, without further consideration and at ASSIGNEE'S expense, to transfer the right to sue for past infringement to ASSIGNEE and at ASSIGNEE'S request documents and information concerning the enforcement of the right to sue within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the right to sue of any patent encompassed within the terms of this instrument.

ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE'S sole use and behalf; and for the use and behalf of ASSIGNEE'S legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Debdeep Jena 271 Fitzpatrick Hall Notre Dame, IN 46556	Signature June 20, 2012 Date
Before me personally appeared said and deed this day of	(Notarization preferred has not required) and acknowledges this instrument to be his (her) free act , 2006.
	Notary Public

WHEREAS, Let Liu, whose office address appears below (hereinafter referred to as Assignor), is an employee of the University of Notre Dame du Lac, with an address at 511 Main Building, Notre Dame, Indiana, 46556 (hereinafter referred to as Assignee) and has certain obligations to disclose and assign patentable new inventions to ASSIGNES; and

WHEREAS, ASSIGNOR has invented a new and useful invention entitled: "Terahertz Wave Amplitude Modulation", Docket Number UND 12-011 (hereinafter referred to as the Invention) for which a United States Patent Application title "Method and Apparatus for Terahertz Wave Amplitude Modulation" will be filed on or about June 21, 2012; and

WHEREAS, ASSIGNEE is desirous of acquiring the entire right, title and interest in and to the INVENTION in the United States and throughout the world; and

WHEREAS, ASSIGNOR is willing to assign his entire right, title, and interest in and to the INVENTION to ASSIGNEE;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, I, Assignor, by these presents do sell, assign and transfer unto said ASSIGNEE, the entire right, title and interest in and to said INVENTION and applications throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said INVENTION throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said INVENTION.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, presecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said INVENTION, including additional documents that may be required to affirm the rights of ASSERBEE in and to said INVENTION, all without further consideration. Assignor also agrees, without further consideration and at ASSIGNEE's expense, to identify and communicate to ASSIGNEE at ASSIGNEE'S request documents and information concerning the INVENTION that are within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument.

ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to transfer the right to sue for past infringement to ASSIGNEE and at ASSIGNEE's request documents and information concerning the enforcement of the right to sue within ASSIGNOR's possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNER in respect of the right to sue of any patent encompassed within the terms of this instrument.

ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE'S sole use and behalf, and for the use and behalf of ASSIGNEE'S legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Lei Liu 105A Fitzpatrick Hall Notre Dame, IN 46556	Signature 06/20/12 Date
	(Notarization preferred but not consired
Before me personally appeared said and deed this day of	and acknowledges this instrument to be his (her) free ac, 2006.
	* Notary Public

UND Assignment-0911

PATENT REEL: 028446 FRAME: 0228

RECORDED: 06/26/2012