## 502388529 06/18/2013

## PATENT ASSIGNMENT

# Electronic Version v1.1 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
PAVEL BORODULIN	03/25/2013
NABIL ABDEL-MEGUID EL-HINNAWY	03/22/2013
ROBERT MILES YOUNG	03/22/2013
ROBERT S. HOWELL	03/22/2013
JOHN S. MASON JR.	03/22/2013
BRIAN PAUL WAGNER	03/22/2013
MATTHEW RUSSELL KING	03/22/2013
EVAN B. JONES	03/22/2013
MICHAEL J. LEE	03/26/2013
MARC EISENZWEIG SHERWIN	03/25/2013

## **RECEIVING PARTY DATA**

Name:	NORTHROP GRUMMAN SYSTEMS CORPORATION	
Street Address:	2980 FAIRVIEW PARK DRIVE	
City:	FALLS CHURCH	
State/Country:	VIRGINIA	
Postal Code:	22042-4511	

#### PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13828351

## **CORRESPONDENCE DATA**

**Fax Number**: 2166214072

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

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Email: lpringle@tarolli.com

Correspondent Name: Christopher P. Harris

Address Line 1: Tarolli, Sundheim, Covell & Tummino LLP

PATENT

REEL: 030634 FRAME: 0911

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Address Line 2: 1300 East Ninth Street, Suite 1700 Address Line 4: Cleveland, OHIO 44114		
ATTORNEY DOCKET NUMBER:	NG(ES)022098 US PRI	
NAME OF SUBMITTER:	Christopher P. Harris	
Signature:	/Christopher P Harris/	
Date:	06/18/2013	
Total Attachments: 6 source=ES022098Assignment#page1.tif source=ES022098Assignment#page2.tif source=ES022098Assignment#page3.tif source=ES022098Assignment#page4.tif source=ES022098Assignment#page5.tif source=ES022098Assignment#page6.tif		

#### **ASSIGNMENT**

WHEREAS, I, Pavel Borodulin, together with Nabil Abdel-Meguid El-Hinnawy, Robert Miles Young, Robert S. Howell, John S. Mason, Jr., Brian Paul Wagner, Matthew Russell King, Evan B. Jones, Michael J. Lee and Marc Eisenzweig Sherwin, hereinafter referred to as Assignor have jointly invented certain new and useful improvements in A PHASE CHANGE MATERIAL SWITCH AND METHOD OF MAKING THE SAME, for which application for Letters Patent of the United States has been filed on 14 March 2013 under Serial No. 13/828351;

WHEREAS, Northrop Grumman Systems Corporation, a Delaware corporation, having its principal place of business at 2980 Fairview Park Drive, Falls Church, VA 22042-4511, United States of America, hereinafter referred to as Assignee, is desirous of acquiring the entire right, title and interest in, to and under said improvements and said application:

NOW, THEREFORE, in consideration of Assignor's obligations to Northrop Grumman Systems Corporation, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, Assignor's entire right, title and interest in, to and under said improvements, and said application and all divisions, renewals, continuations, and continuations-in-part thereof, and all United States Letters patent that may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent that may hereafter be filed for said improvements in any country or countries foreign to the United States, including the full right to claim for any such application the priority benefits of the International Convention for the Protection of Industrial Property and other priority-conferring treaties, and all Letters Patent that may be granted for said improvements in any country or countries foreign to the United States and all extensions, divisions, continuations, continuations-in-part, renewals and reissues thereof; and Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said improvements to said Assignee, its successors, legal representatives and assigns, in accordance with the terms of this instrument;

Assignor hereby acknowledges that at the time of making the improvements herein identified, Assignor was under an obligation to assign to Assignee, Assignor's entire right, title and interest in, to and under said improvements;

Assignor hereby covenants that Assignor has full right to convey the interest herein assigned, and that Assignor has not executed, and will not execute, any agreement in conflict herewith and that Assignee, Northrop Grumman Systems Corporation, its successors, assigns and other legal representatives shall have the right to hold and enjoy for its and their own use and benefit, to the end of the term or terms for which such Letters Patent shall or may be granted, reissued or extended as fully and completely as the same right could have been held and enjoyed by Assignor had this Assignment not been made.

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I certify under PENALTY OF PERJURY under the laws of the State of Maryland that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Mary gstanla

MARY J. STANLEY

Notary Public
Carroll County
Maryland
My Commission Expires Aug 9, 2014

IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this day of
March , 2013, and has executed the referenced patent application on the
NABIL ABDEK-MEGUID EL-HINNAWY STATE OF MARYLAND)
COUNTY OF are are fred &
On Narch 22, 20 before me, Mary Starter, personally appeared NABIL ABDEL-MEGUID EL-HINNAWY, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to this instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.
I certify under PENALTY OF PERJURY under the laws of the State of Maryland that the foregoing paragraph is true and correct.
WITNESS my hand and official seal.
Mary's Signature MARK L STANLEY (SEAL)
Notifig PtiBlic しゃらみが Carroll County nated Maryland いかったの
By Commission Expires Aug/19, 2014
IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 22 day of
has code, 2013, and has executed the referenced patent application on the 22 day of
Mr July 1
ROBERT MILES YOUNG
STATE OF MARYLAND)  O O O O O O O O O O O O O O O O O O O
COUNTY OF area Creenedel
Or Xarch 72, 2013 before me, North Garden, personally appeared ROBERT MILES YOUNG, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to this instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.
I certify under PENALTY OF PERJURY under the laws of the State of Maryland that the foregoing paragraph is true and correct.
WITNESS my hand and official seal.
Mary Starley (SEAL)
MARY J. STANLEY
Chroil County 13.3MATE 5.7MAM
My Commission Expires Aug 8/2014 Board
A COLD BOOK PRINTED TO SELECT STORE AND

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IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this	of
ROBERT S. HOWELL	
STATE OF MARYLAND)	
COUNTY OF arreary sodel	
On Nav M22, 2013 before me, Wave Starley , personally apper ROBERT S. HOWELL, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/a subscribed to this instrument and acknowledged to me that he/she/they executed the same in his/her/their authoricapacity(ies), and that by his/her/their signature(s) on the instrument to be the person(s), or the entity upon behalf which the person(s) acted, executed the instrument.	zed
I certify under PENALTY OF PERJURY under the laws of the State of Maryland that the foregoing paragraph is tri correct.	ue and
WITNESS my hand and official seal.	
Maria Committee and Committee	
MARY J. SEANLEST (SEAL)  Notary's Signature  Notary Sublicities County	
IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 2 day MARCK, 2013, and has executed the referenced patent application on the 22 day of MARCK, 2013.  JOHN S. MASON, JR.  STATE OF MARYLAND)  COUNTY OF Arrea area area and delivered this instrument this 2 day of John S. MASON, JR.	of
On March 220 Before me, March Standard, personally appersonable of the person of the p	are ized
I certify under PENALTY OF PERJURY under the laws of the State of Maryland that the foregoing paragraph is tri correct.	ue and
WITNESS my hand and official seal.	
Notary & Signature  Nature Signature  Wary J. STANLEY (SEAL)  Mary J. STANLEY (SEAL)  Mary Public brief County (Seal)  Corroll County (Seal)  Corroll County (Seal)  Wary Hand	
My Commission Expires Aug 9, 2014	

IN WITNES	SS WHEREOF, the under	signed has executed and delivered	this instrument this 22 day of
March	_, 2013, and has executed	I the referenced patent application of	on the day of
- NOCK	, 2010.	<u>D.</u>	Paul Wayn
		BRIAN PAUI	WAGNER
STATE OF MAR			
	recent are the state of the second		
BRIAN PAUL WA subscribed to this capacity(ies), and	AGNER, proved to me on s instrument and acknowle	edged to me that he/she/they execu ature(s) on the instrument to be the	, personally appeared be the person(s) whose name(s) is/are ted the same in his/her/their authorized person(s), or the entity upon behalf of
I certify under PE correct.	NALTY OF PERJURY un	nder the laws of the State of Marylar	nd that the foregoing paragraph is true and
•	and and official seal.	MARY J. STANLEY Notary Public Carroll County	
Maly	Stanley ary Signature	Maryland My Commission Expires Aug 9, 2014	(SEAL)
IN WITNES	SS WHEREOF, the under	MARY J. STANLEY Notary Public Carrolf County benevileb has execupated benejis knotbasilega Inetag beseneneter	this instrument this 22 <sup>nd</sup> day of
March	, 2013.	to the second of	
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OTATE OF MAD	VI AND\	MATTHEW	RUSSELL KING
STATE OF MAR	rune Organ de	<b>U</b>	
MATTHEW RUS subscribed to this capacity(ies), and	SELL KING, proved to me s instrument and acknowle	edged to me that he/she/they execu ature(s) on the instrument to be the	personally appeared ce to be the person(s) whose name(s) is/are sted the same in his/her/their authorized person(s), or the entity upon behalf of
I certify under PE correct.	ENALTY OF PERJURY ur	nder the laws of the State of Marylai	nd that the foregoing paragraph is true and
WITNESS my ha	and and official seal.		
mary	X Sterilly arvis Signature	<del>-</del>	(SEAL)
	MARY Nota Carro May My Commission S	Public Y3.IMAYS YRAM County side wron	

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IN WITNESS WHEREOF, the unders	signed has executed and delivered this the referenced patent application on t	he 22 day of
	JP.	~
	EVAN B. JONE	S
STATE OF MARYLAND)		
COUNTY OF armedru xdel		
On YOUR 72 202 before me, YOU EVAN B. JONES, proved to me on the basi to this instrument and acknowledged to me and that by his/her/their signature(s) on the person(s) acted, executed the instrument.	is of satisfactory evidence to be the per that he/she/they executed the same is instrument to be the person(s), or the	e entity upon behalf of which the
I certify under PENALTY OF PERJURY un correct.	der the laws of the State of Maryland t	hat the foregoing paragraph is true and
WITNESS my hand and official seal.	in metaporat in the second of the second	
Mary Stanley Notary's Signature	MARY J. STANLEY  Notary Public Carroll County Maryland My Commission Expires Aug 9, 2014	(SEAL)
IN WITNESS WHEREOF, the under YICL'C., 2013, and has executed yICL'C., 2013.	rsigned has executed and delivered this differenced patent application on MICHAEL J. L.	Leo
COUNTY OF anne arginal		
On Make 213 before me, Mc MICHAEL J. LEE, proved to me on the ba subscribed to this instrument and acknowledge capacity(ies), and that by his/her/their sign which the person(s) acted, executed the in	Start	erson(s), or the entity upon behalf of
I certify under PENALTY OF PERJURY u correct.	nder the laws of the State of Maryland	I that the foregoing paragraph is true and
WITNESS my hand and official seal.	والمراجع والمراجع والمحار المتعارض	
Mary of Stanley Notary's Signature	MARY & STANLEY  Hotary Public  Carrell County  Maryland  My Commission Expires Aug 9, 2014	( ) = ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (

N WITNESS WHEREOF, the undersigned has executed the referenced pate	I and delivered this instrument this 750 day of ent application on the 25 day of
	MARC EISENZWEIG SHERWIN
STATE OF MARYLAND)	
COUNTY OF area arisedel	
On March 35, 3-013  On March 35, 3-013  MARC EISENZWEIG SHERWIN, proved to melon/he basis of is/are subscribed to this instrument and acknowledged to me th authorized capacity(ies), and that by his/her/their signature(s) of behalf of which the person(s) acted, executed the instrument.	satisfactory evidence to be the person(s) whose name(s) at he/she/they executed the same in his/her/their in the instrument to be the person(s), or the entity upon
I certify under PENALTY OF PERJURY under the laws of the S correct.	tate of Maryland that the foregoing paragraph is true and
WITNESS my hand and official seal.	
Mary & Standay Notary's Signature	(SEAL)
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MARY J. STA Notary Pub Carroll Cou Maryland My Commission Expire	ille nty

**RECORDED: 06/18/2013**