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o the Honourable Commissioner of Pat thereof. 2. Name and address of receiving party(ies): 1. Name of conveying party(ies): The University of British Columbia Name: Lorne A. Whitehead Robin John Noel Coope Street Address: Room 331 IRC Building Andrzej Kotlicki 2194 Health Sciences Mali Additional name(s) of conveying party(ies) attached? [] Yes [X] No City: Vancouver Province: British Columbia 3. Nature of Conveyance: Country: Canada [X] Assignment [] Merger Postal Code: V6T 1Z3 [] Security Agreement [] Change of Name [] Other _ Additional name(s) and address(es) attached? [] Yes [X] No/ Execution Date: 25 November, 1999 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: 25 November, 1999 A. Patent Application No.(s) B. Patent No.(s) Additional numbers attached? [] Yes [X] No 6. Total no. of applications and patents involved: [1] 5. Name and address of party to whom correspondence concerning document should be mailed: 7. Total fee (37 CFR 3.41) \$ 40.00 Name: OYEN WIGGS GREEN & MUTALA [X] Enclosed Suite 480 - The Station Address: [] Authorized to be charged to deposit account 601 West Cordova Street Vancouver, British Columbia 8. Deposit Account Number: CANADA V6B 1G1 (Attach copy of this page if paying by deposit account) Fax: (604) 681-4081 Tel.: (604) 669-3432 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. 25 November, 1999 Blake R. Wiggs, Regn. No. 29,505 Date Name of Person Signing Total Number of pages including cover sheet, attachments, and document: [4]

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ASSIGNMENT

WHEREAS WE, Lorne A. Whitehead; Robin John Noel Coope; and, Andrzei Kotlicki (hereinafter collectively called the "Assignors"), whose full post office addresses are respectively 3015 West 12th Avenue, Vancouver, British Columbia, Canada V6K 2R4; 4635 Bellevue Drive, Vancouver, British Columbia, Canada V6R 1E7; and, 4508 West 12th Avenue, Vancouver, British Columbia, Canada V6R 2R5 are the inventors of certain inventions or improvements described and claimed in the application for United States Letters Patent executed concurrently herewith and entitled:

OPTICAL SWITCHING BY CONTROLLABLE FRUSTRATION OF TOTAL INTERNAL REFLECTION

AND WHEREAS, The University of British Columbia, (hereinafter called the "Assignee") whose full post office address is c/o Industry Liaison Office. Room 331 IRC Building, 2194 Health Sciences Mall, Vancouver, British Columbia, Canada V6T 1Z3, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements, and in and to the said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries;

NOW THEREFORE, in consideration of the sum of ONE (\$1.00) DOLLAR and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, WE, the Assignors, do hereby, both jointly and severally, sell, assign, transfer and set over to the Assignee the entire right, title and interest in and to the said inventions or improvements and said application, and any and all continuations, divisions, renewals of or substitutes for said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof, and any reissue or reissues of said Letters Patent; and WE assign to and authorize the Assignee to file in our names applications for Letters Patent for said inventions or improvements in all countries, the same to be held and enjoyed by the Assignee, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Letters Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by us, had this assignment, sale and transfer not been made;

AND WE hereby covenant that WE have full right to convey the entire interest herein assigned, and that WE have not executed and will not execute any agreement in conflict herewith, and WE further covenant and agree that WE will, each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said inventions or improvements, said application and said Letters Patent, in the Assignee, its successors, assigns, nominees or legal representatives, and WE agree to communicate to the Assignee, or its nominees, all known facts respecting said inventions or improvements, said application and said Letters Patent, to testify in any legal proceedings, to sign all lawful papers, to execute all disclaimers and divisional, continuing, reissue and foreign applications, to make all rightful oaths, and generally to do everything possible to aid the Assignee, its successors, assigns, nominees and legal representatives to obtain and enforce for its or their own benefit, proper patent protection for said inventions

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PATENT REEL: 010420 FRAME: 0200 or improvements in any and all countries, all at the expense, however, of the Assignee or its successors, assigns, nominees or legal representatives;

AND WE hereby authorize and request the Commissioner of Patents and Trademarks of the United States of America and any official of any country or countries foreign to the United States of America whose duty it is to issue patents on applications as aforesaid, to issue to the Assignee, as assignee of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, which may be issued and granted on or as a result of the application aforesaid, in accordance with the terms of this Assignment.

EXECUTED at Vancouver, British Columbia, Canada this 25th day of November, 1999.

Lorne A Whitehead

EXECUTED at Vancouver, British Columbia, Canada this 25th day of November, 1999.

Robin John Noel Coope

EXECUTED at Vancouver, British Columbia, Canada this 25th day of November, 1999.

Andrzej Kotlicki

Andrzej Kotlicki

NOTARIAL CERTIFICATE

On this 25th day of November, 1999 before me, personally appeared Lorne A. Whitehead, known to me to be one of the individuals who executed the foregoing instrument, and who acknowledged to me that he executed the same of his own free will and

for the purpose therein set forth.

BLAKE R. WIGGS Barrister & Solicitor 480-601 West Cardova St. VANCOUVER, B.C. V6B 1G1

Notary Public in and for the Province of British Columbia, Canada. My Commission is for life.

NOTARIAL CERTIFICATE

On this 25th day of November, 1999 before me, personally appeared Robin John Noel Coope, known to me to be one of the individuals who executed the foregoing instrument, and who acknowledged to me that he executed the same of his own free will and for the purpose therein set forth.

> BLAKE R. WIGGS Barrister & Solicitor 480-50 West Cordova St. VANCOUVER, B.C. VGB 1GT Notary Public in and for the Province of

British Columbia, Canada. My Commission is for life.

NOTARIAL CERTIFICATE

On this 25th day of November, 1999 before me, personally appeared Andrzej Kotlicki, known to me to be one of the individuals who executed the foregoing instrument, and who acknowledged to me that he executed the same of his own free will and for the purpose therein set forth.

BLAKE A. WIGGS Barrister & Solicitor 480-601 V/est Cordova St. VANCOUVER, B.C. VOB 161

Notary Public in and for the Province of British Columbia, Canada.

My Commission is for life.

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RECORDED: 11/26/1999