

07-16-2002



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

1. Name of conveying party(ies): 7-12-02 Massachusetts Institute of Technology Additional name(s) of conveying party(ies) attached? [] Yes [] No

2. Name and address of receiving party(ies) Name: National Science Foundation Internal Address: Office of the General Counsel Suite 1265 Street Address: 4201 Wilson Boulevard City: Arlington State: VA Zip: 22239 Additional name(s) & address(es) attached? [] Yes [x] No

3. Nature of conveyance: [] Assignment [] Merger [] Security Agreement [] Change of Name [x] Other Confirmatory License Execution Date: 03/20/02

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) 09/922,830 B. Patent No.(s) Additional numbers attached? [] Yes [x] No

5. Name and address of party to whom correspondence concerning document should be mailed: Name: Robin Clay Fritsch Internal Address: Office of the General Counsel Suite 1265 Street Address: 4201 Wilson Boulevard City: Arlington State: VA Zip: 22230

6. Total number of applications and patents involved: [] 7. Total fee (37 CFR 3.41).....\$ 0.00 [] Enclosed [] Authorized to be charged to deposit account 8. Deposit account number: FINANCE SECTION 2002 JUL 12 AM 8:29 OFFICE OF PATENT RECORDS

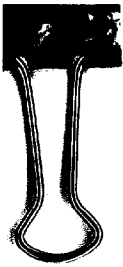
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9. Signature. Robin Clay Fritsch Name of Person Signing [Signature] Signature 7/12/02 Date

Total number of pages including cover sheet, attachments, and documents: []

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

PATENT REEL: 013075 FRAME: 0802



MIT Case No: 8957

LICENSE TO THE UNITED STATES GOVERNMENT

WHEREAS, John Joannopoulos et al. have invented "Three-Dimensionally Periodic Dielectric Layered Structure with Omnidirectional Photonic Bandgap" and filed a patent application thereon in the United States, entitled "Periodic Dielectric Structure Having a Complete Three-Dimensional Photonic Band Gap" and bearing Serial Number 09/922,830 and filing date 08/06/01; and

WHEREAS, invention was made in the course of research supported by the National Science Foundation under N.S.F. Grant Number DMR-9808941; and

WHEREAS, the United States Government is entitled to certain rights in and to said invention and application by reason of the terms relating to such support; and

WHEREAS, the Massachusetts Institute of Technology, hereinafter called the "Licensor" has acquired by assignment from the inventors the entire right, title and interest of the inventors to such invention;

NOW, THEREFORE:

1. The Licensor, in consideration of the premised and other good and valuable consideration, hereby grants and conveys to the United States Government a non-exclusive, non-transferable, paid-up license to make, use and sell the invention throughout the world by or on behalf of the Government of the United States and states and domestic municipal governments under the aforesaid patent application and any and all divisions or continuations, and in any and all patents or reissues which may be granted thereon during the full term or terms thereof.

2. The Licensor covenants and warrants that he has the right to grant the foregoing license, and that any assignment or license which he may make of the invention or the said patent application or patents thereon, shall expressly be make subject to this license.

3. The Licensor agrees that the Government shall not be estopped at any time to contest the enforceability, validity, scope of or title to any patent or patent application herein licensed.

4. This License shall not limit the rights reserved to the Government under the contract(s), grant(s), or other arrangement(s) under which said invention was made.

Signed this 11th day of October 2001.

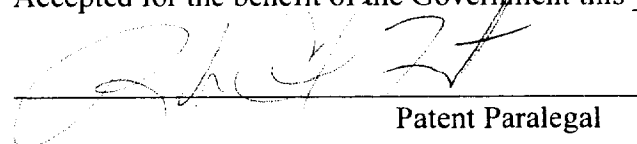
MASSACHUSETTS INSTITUTE OF TECHNOLOGY



Deborah Burke
Patent Compliance Administrator
Technology Licensing Office

77 Massachusetts Avenue, Room NE25-230, Cambridge, MA 02139

Accepted for the benefit of the Government this 20 Mar 02


Patent Paralegal

PATENT